CRANFIELD UNIVERSITY

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THE DEVELOPMENT, DEPLOYMENT, AND REDPLOYMENT OF BUSINESS SOLUTIONS – A SYSTEMATIC REVIEW

School of Management
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MASTER OF RESEARCH
Academic Year: 2011- 2012

Supervisors: Dr Uta Juttner, Dr Stan Maklan
August 2012

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ABSTRACT

Offering business solutions instead of selling products has been identified by many firms as a strategy to fight against price pressure through commoditisation, to strengthen relationships with customers, and to increase 'share of wallet'. Yet, three out of four companies selling business solutions fail to see a sustainable economic impact (Johansson et al., 2003). One approach to understanding how business solution suppliers could change this situation is to develop an understanding of the life cycle of business solutions, from idea generation to redeployment. This systematic review examines how the literature conceptualises the development, deployment and redeployment of business solutions. It systematically identifies and then analyses 31 scholarly articles contributing to our knowledge on this issue.

The review discusses the literature within the framework of four aspects. Firstly, the review proposes the processes and phases of the development and deployment of business solutions. Secondly, it presents the components of the redeployment of business solutions. Thirdly, it provides information on the actors involved in the development, deployment, and redeployment of business solutions, and, fourthly, it discusses the interaction forms of these actors. The discussion shows that evidence in relation to the conceptualisation of the development, deployment, and redeployment of business solutions remains at a superficial, tentative and inconclusive level. The major limitations of the extant literature relate to the studies' context-specificity, their lack of theoretical underpinning, and their deficiency of including actors of the supplier and/or customer network in the empirical investigation even though there is evidence that they play a role in the development, deployment, and redeployment of business solutions. Based on the limitations identified, the study suggests opportunities of further research.

Keywords:

Integrated solutions, business-to-business marketing, service-dominant logic, process perspective, interaction forms

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LIST OF ABBREVIATIONS

CoPS	Complex Products and Systems
CRM	Customer Relationship Management
ERP	Enterprise Resource Planning
HRM	Human Resource Management
KAM	Key Account Management
NPD	New Product Development
NSD	New Service Development
PSS	Product-Service System
RM	Relationship Marketing
SDL	Service-Dominant Logic

1 Introduction

The industrial business-to-business climate is characterised by global competition and commoditising markets, which leads to high pressure on prices and declining margins. Competitive advantage based on cost advantages and/or the quality of products and technologies is becoming increasingly difficult to maintain for companies based in the developed economies of Europe and/or North America. Over the last years or decades, respectively, many traditional product-centric firms reacted by incorporating value-adding services into their offers. This trend towards the servitisation of product ranges (Vandermerwe and Rada, 1988) has further developed into the provision of business solutions. Business solution providers no longer provide only products – such as a robots, software, or machines – and services – such as maintenance, repair and insurance – but dynamically evolving offerings which support the customers' business models and strategies and have a direct impact on both the customers' and the suppliers' success. Offering business solutions is attractive since it promises financial gains (e.g. revenue stream, profit margin and increased share of wallet), strategic benefits (e.g. competitive opportunities and advantage) and marketing benefits (e.g. customer loyalty and access to new markets) (Baines et al., 2009; Johansson et al., 2003).

Yet, business practise shows that providing effective business solutions which are profitable for suppliers has proven to be challenging. According to a survey of 200 executives of Fortune 1000 firms, half of the business solution providers experience only modest returns and a quarter do not recover the cost of their investments (Stanley and Wojcik, 2005). Similarly, Fang et al.'s (2008) longitudinal research spanning 15 years and involving 447 publicly traded companies demonstrates that a high degree of integration and a large number of service components within an offering is no guarantee of incremental profit. Stated alternatively, suppliers may also experience losses with business solutions.

One approach to understanding how business solution suppliers could change this situation is to develop an understanding of the life cycle of business solutions. In other words, the processes that underlie the formation and on-going development of a business solution, from idea generation to the redeployment of the business solution,

ought to be understood. Knowing about these processes would be a first step towards being able to derive processes-specific implications and recommendations for practise.

1.1 Aim of the Review

By conducting the systematic review, I intend to examine, in an objective and structured way, the conceptual and empirical evidence available on the development, deployment, and redeployment of business solutions. The review may offer useful insights for academics and practitioners who engage in the study or practice of the development, deployment and redeployment of business solutions. For academics, an overall picture of the evidence in this subject area can direct future research efforts.

1.2 Structure of the Review

This review is structured into seven chapters. Following this introduction, in chapter 2, I will position this field of inquiry within the management literature and provide a rationale for this choice of positioning. I also present the review question. In chapter 3, I describe the methodology of this review, providing information on the review panel, the search strategy, the selection and quality criteria, the selected articles, as well as the data extraction and synthesis. The descriptive account of the selected articles in chapter 4 comprises the characteristics of the journals included, the articles' chronological distribution, the key authors and countries of origin, the epistemological stances and theoretical foundations adopted by the authors, the types of articles and methods used, information on geographical location and industries investigated, and descriptive thematic contributions. Chapter 5 presents the findings and is structured into phases and processes of the development and deployment of business solutions, the redeployment of business solutions, as well as actors and their interaction forms involved in the development, deployment, and redeployment of business solutions. In chapter 6, I discuss these findings along five key insights and suggest respective directions for further research, including my future PhD research. I also present this reviews' academic and practical contribution. In chapter 7, I conclude the review by outlining its limitations and reflecting on my personal learning.

2 Positioning the Field of Inquiry

In the following, I provide an overview of the literature domains that are most influential to the investigation of the development, deployment, and redeployment of business solutions. These are (1) relationship marketing (RM) and key account management (KAM), (2) innovation and new product development (NPD) and new service development (NSD), and (3) business solutions.

2.1 Relationship Marketing and Key Account Management

RM has been discussed amongst academics and practitioners for about 30 years, though the concepts related to collaborative strategies unquestionably precede this date (cf. Berry, 1995). In contrast to transactional marketing which is based on the axioms that competition and self-interest as well as interdependence and choice are the drivers of value creation, RM is based on the assumptions that mutual interdependence and cooperation leads to higher value creation (Sheth and Parvatiyar, 1995). RM and the 'relational paradigm' have developed since the 'exchange paradigm' of transactional marketing was not sufficient to explain the partnering and alliance approaches which emerged in marketing practice between firms and firms and its stakeholders in the post-industrial era (Webster, 1992). Transactional marketing was based on the assumption that consumers were accessible in large quantities and exhibited a passive behaviour. Within business-to-business and service markets, the contribution of the customer is essential to effectively complete the exchange (Gummesson, 1987); moreover, within business-to-business markets, customers are often limited in numbers. In contrast to transactional marketing, the outcome of relational engagements is not necessarily an exchange of values. Rather, it is a process of value creation through cooperative and collaborative endeavours (Sheth and Parvatiyar, 1995).

Morgan and Hunt (1994) refer to RM as representing "all marketing activities directed toward establishing, developing, and maintaining successful relational exchanges" (p.22). In a similar vein, Grönroos (1994) proposes that RM is a means by which the firm can "identify and establish, maintain and enhance and, when necessary, terminate relationships with customers and other stakeholders, at a profit so that the objectives of all parties involved are met; and this is done by mutual exchange and fulfilment of

promises" (p.9). Thus, in addition to a customer focus, a firm should consider a variety of partnerships with suppliers, internal customers (employees), institutions and intermediaries (Clarkson et al., 1997). This can be explained by Berry's (1995) conceptualisation of RM as a means-end equation. He states that "companies must establish relationships with noncustomer groups (the means) to successfully establish relationships with customers (the end)" (Berry, 1995, p. 242). Hence, firms should compete by engaging in long-term relationships with all their stakeholders. Relationships are seen as dynamic processes that develop over time through typical stages, in which marketing activities and exchange characteristics systematically vary across these stages (Dwyer et al., 1987; Wilson, 1995). The majority of definitions imply four general stages: identifying, developing, maintaining, and terminating (Palmatier, 2008).

Palmer (1996) classifies RM research into three broad approaches, building on Berry's (1995) conceptualisation of three levels of RM. First, at a philosophical level, RM has been considered to go to the core of marketing philosophy, shifting the focus of marketing strategy from products and product life cycles towards customer relationship life cycles and customer centricity with inter-functional coordination. The essence of customer centricity relates to the process of twofold value creation. It does not focus on how to sell products "but rather on creating value for the customer and, in the process, creating value for the firm" (Shah et al., 2006, p. 115). Second, at a strategic level, RM has been considered as a process by which suppliers aim to 'tie-in' customers through legal, economic, technological, geographic, time bonds (Liljander and Strandvik, 1995), and/or mutually rewarding co-operation, mutual dependence and shared risk. Third, at a tactical level, RM has been primarily used as a sales promotional tool.

While RM relates to all customers and stakeholders of a firm, KAM relates to key accounts only. Key accounts are business-to-business customers which a selling firm has identified as strategically important (Ryals and Rogers, 2007). The conceptualisation of the three levels of RM and KAM are similar. It is not rare that within these close, strategic relationships some form of joint innovation is created. The next section gives a brief insight into the innovation, NPD, and NSD literature.

2.2 Innovation and New Product/New Service Development

The field of innovation is very broad, comprising "the generation, acceptance and implementation of new ideas, processes, products or services" (Thompson, 1965, p. 2). It relates to "the effective application of processes and products new to the organisation and designed to benefit it and its stakeholders" (West and Anderson, 1996, p. 682). Situated in the broad field of innovation, NPD, and NSD respectively, refer to the overall process of developing new product offerings, and new service offerings respectively, from idea generation to launch or implementation (Cooper, 1993; Johne and Storey, 1998). Extensive research has been done in the field of NPD. One popular research focus relates to structuring and advancing the NPD process from idea generation to launch (Booz et al., 1982; Cooper, 1988; 1993; 2008; Ulrich and Eppinger, 1995; 2008). One of the most recognised NPD models is the Stage–Gate™ process (Cooper, 1993; Cooper and Kleinschmidt, 1990) (see Figure 1). This model has been adapted and reformed over several decades.

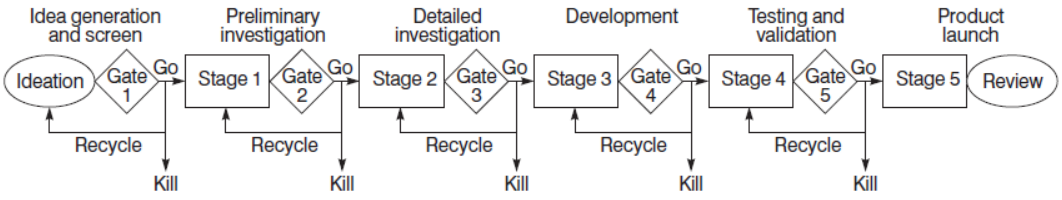

Figure 1: The Stage–Gate™ NPD Process (Cooper and Kleinschmidt, 1990, p. 63)

The Stage-Gate process™, in its simplest setup, is composed of a series of stages, with each stage comprising a collection of necessary or commended best-practice activities required to advance the project to the next gate, where go/kill decisions are made in relation to continue investing in the project (Cooper, 2008). The stages are cross-functional in nature and no single functional area dominates them.

NPD research has been expanded to research on NSD since the late 1980s. Initially, rather than suggesting approaches to NSD, the majority of studies tended to compare and contrast factors contributing to product and service innovation success in different industries (De Brentani, 1989; De Brentani and Cooper, 1992; De Brentani and Ragot, 1996; Easingwood, 1986). From the 1990s, the scope of NSD was broadened to service

delivery processes as well as the investigation of the customer's role in these processes (Edvardsson and Olsson, 1996; Johne and Storey, 1998).

The NSD literature can be classified according to three schools of thought, the assimilation, demarcation and synthesis literature (Coombs and Miles, 2000). Researchers of the assimilation stream assume that theories and concepts from the NPD literature can simply be transferred to the study of new services. Scholars from the demarcation branch postulate that knowledge from manufacturing contexts cannot be applied to a service context due to the differentiating features of services. The latter pertain to intangibility, heterogeneity, inseparability (of production and consumption), perishability (Zeithaml et al., 1985) and co-production with customers (Fitzsimmons and Fitzsimmons, 2000). The synthesis stream tries to connect the NPD and NSD literature, rather than studying both areas in isolation. In a recent review of the literature, Droege et al. (2009) concluded that the assimilation and demarcation streams are declining in importance and relevance while the synthesis approach seems to be flourishing. Gallouj and Weinstein (1997) were amongst the first to pursue this direction of research. The authors' classification of forms and characteristics of 'products' does not differentiate between the product in a service and a manufacturing context and explicitly suggests an integrative approach to studying innovation in both contexts. The synthesis approach emphasises that elements of NSD are similarly crucial in manufacturing (Coombs and Miles, 2000; Drejer, 2004), such as the significance of interactive models of innovation in response to the oversimplified linear model of innovation (Drejer, 2004; Gallouj and Weinstein, 1997) and the consideration of the customer as a co-producer in innovation processes (Drejer, 2004). A significant amount of studies pertaining to the business solution literature also claims that customers play an active role in the creation of the business solution. This literature domain is discussed in the next section.

2.3 Business Solutions

Considering exclusively business-to-business markets, the third relevant literature domain obviously pertains to business solutions. This field of literature is emerging and displays a divergent view on the meaning of a business solution, which manifests itself in different definitions and variants of the concept. Differences already begin with the

labelling. Beside the denominations ‘solution’ (Galbraith, 2002; Sharma and Iyer, 2011), ‘integrated solution’ (Bonnemeier et al., 2010; Ceci and Prencipe, 2008; Davies et al., 2006; Johannsen and Leist, 2009; Windahl and Lakemond, 2010) and ‘customer solution’ (Cornet et al., 2000; Hax and Wilde, 1999; Sawhney, 2006; Töllner et al., 2011; Tuli et al., 2007), there is literature dealing with business solution type offerings which does not use the word solution itself. In the following, I elaborate on the variants of the concept.

Broadly, there are three different streams of literature relating to business solutions, differing in their foci, as depicted in Figure 2. Two of them relate to the realm of the servitisation of manufacturing (Vandermerwe and Rada, 1988) (cf. Baines et al., 2007; Pawar et al., 2009; Velamuri et al., 2011).

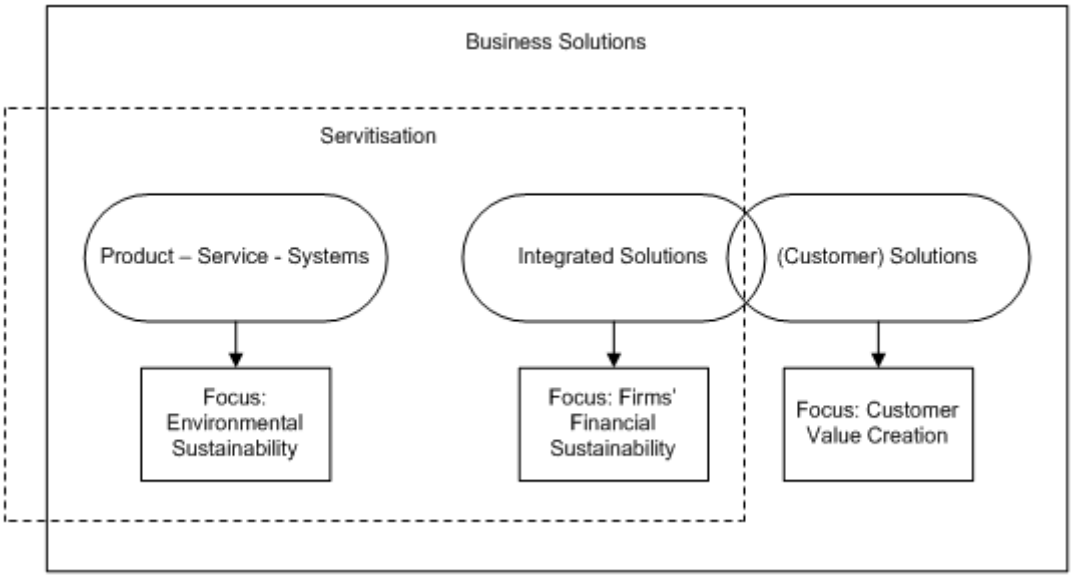

Figure 2: Streams of Business Solution Literature

One stream relates to product-service systems (PSSs) (Aurich et al., 2009; Manzini et al., 2001; Mont, 2002; Sakao et al., 2009; Sundin et al., 2009; Tukker, 2004). Its aim is to achieve environmental sustainability by combining products and services to reduce environmental impact of both production and use. A PSS is defined as “a marketable set of products and services capable of jointly fulfilling a user’s need” (Goedkoop et al., 1999, p. 18). The PSS literature emerged from a variety of policy reports (e.g. Mont, 2000; White et al., 1999) which recommended service as a way to achieve a reduction in consumption by decreasing the need for products. In these reports, PSSs are

presented as a concept to create a ‘functional economy’ in which producers are responsible for products and sell its ‘function’ to customers (White et al., 1999). As a consequence, the demand for energy and materials would decrease since products are upgradeable and have extended life-spans. The aim of PSSs is to achieve what Womack and Jones (2005) call “lean consumption”, providing customers with “exactly what they want when and where they want it” (p. 59). PSSs pursue a life cycle approach, “whereby sustainability is considered right from the extraction of raw materials through production, usage and then disposal or re-use of products” (Pawar et al., 2009, p. 476). PSS research is mainly undertaken by manufacturing, design, and engineering scholars. The literature on PSS has focused on social and environmental concerns and the purpose of reducing consumption. Scholars have tried to draw the attention of policy makers to PSS and its benefits.

A second stream relates to integrated solutions (Bonnemeier et al., 2010; Davies et al., 2006; Johannsen and Leist, 2009; Windahl and Lakemond, 2010). Its main assumption is that manufacturing firms achieve financial sustainability by adding services to products and thus creating higher customer value and long-term sustainable income. In increasingly saturated markets, the quality and performance of a product are not enough anymore to guarantee orders but are rather ‘order qualifiers’ – the minimum criteria for a purchase (Hill and Hill, 2009). Services are regarded as an opportunity for differentiation and added value; some scholars have suggested that they exceed the profit potential of product innovations (e.g. Gebauer and Friedli, 2005). In addition, in some markets there is little room for sales growth from the installed base of products. In the US automobile industry, for instance, the ratio of installed base to new units is 13 to one (Wise and Baumgartner, 1999). Consequently, manufacturing firms transfer their efforts towards value adding services and/or even integrated solutions as a source of growth. According to Wise and Baumgartner (1999), firms offering integrated solutions “combine products and services into a seamless offering that addresses a pressing customer need” (p. 138). Integrated solution providers take an increased responsibility for their customers’ operations. Rather than by solely reducing costs, as it mostly appears in outsourcing, integrated solution providers profit by contributing to a higher value creation (Foote et al., 2001).

A third stream focuses mainly on the creation of customer value. This stream may, but – in contrast to the two streams outlined above – does not necessarily relate to the servitisation of manufacturing. Research also includes firms from service industries (e.g. Storbacka, 2011; Tuli et al., 2007). Within this stream, commonly used labels are 'solution' (Galbraith, 2002; Sharma and Iyer, 2011) or 'customer solution' (Cornet et al., 2000; Hax and Wilde, 1999; Sawhney, 2006; Töllner et al., 2011; Tuli et al., 2007)[1]. The boundaries of the second and third stream sometimes become blurred and are not always clearly distinguishable. Much of the literature with the underlying aim to create sustainable supplier profitability and/or customer value pertains to strategy and marketing. A variety of issues are addressed such as business models for solutions (Kujala et al., 2010; Storbacka, 2011), the rationale of becoming a business solution provider (Cova and Salle, 2007; Johansson et al., 2003), customer segmentation for business solutions (Johansson et al., 2003; Miller et al., 2002), profit and pricing models (Bonnemeier et al., 2010; Doster and Roegner, 2000; Roegener, 2001; Roegener et al., 2001; Sharma and Iyer, 2011), marketing (Cova and Salle, 2008) and selling business solutions (Bonney and Williams, 2009; Sharma et al., 2008; Terho et al., 2011), the role of dyadic relationships within the solution provider's network (Windahl and Lakemond, 2006), a solutions provider's organisational structure (Davies et al., 2006; Foote et al., 2001; Miller et al., 2002), their required capabilities (Shepherd and Ahmed, 2000; Windahl et al., 2004) as well as the transformation from product to business solution supplier (Cornet et al., 2000; Salonen, 2011; Windahl and Lakemond, 2010). While earlier research in this areas has been product-, and supplier-centred, more recently, there has been a shift in perspective. Business solutions are now conceptualised as relationship-centred and as co-created in interactive processes (Evanschitzky et al., 2011; Nordin and Kowalkowski, 2010; Tuli et al., 2007). This is reflected in more recent definitions of the concept. Building on Sawhney (2006), Evanschitzky et al. (2011) define it as "individualised offers for complex customer problems that are interactively designed and whose components offer an integrative added value by combining products and/or services so that the value is more than the sum of the components" (p. 657). In a similar vein, Storbacka (2011) defines it as "longitudinal

[1] The labels and streams coincide most of the times. There might, however, be exceptions.

relational processes, during which a solution provider integrates goods, service and knowledge components into unique combinations that solve strategically important customer specific problems, and is compensated on the basis of the customer's value-in-use" (p. 699). Value-in-use is defined as "a customer's outcome, purpose or objective that is achieved through service", according to Macdonald et al. (2011, p. 671) who build on Vargo and Lusch (2004; 2008), Woodruff (1996), and Woodruff and Flint (2006). Some authors (e.g. Cova and Salle, 2008) claim that business solutions are not only jointly created by the supplier and the customer but by additional actors of the customer or supplier network. In the wider literature, this constellation of actors is described as value constellation (Normann and Ramírez, 1993), value system (Jüttner and Wehrli, 1994), or value network (Lusch et al., 2010; Peppard and Rylander, 2006). In the present work, I use the general label business solution since my aim is to conduct a broad review of the literature which should not be limited to one stream only.

After having provided an insight into the literature domains which influence the development, deployment, and redeployment of business solutions, I provide a rationale why they do so.

2.4 Rationale for the Positioning of the Field of Inquiry

Firstly, since business solutions support the customers' business models, business solution providers have to understand these business models to be able to develop a business solution. While developing an understanding of their customers' business models, it is likely that customers and suppliers are in close contact and thereby develop a relationship. Business solution customers are very likely to be strategically important customers. Hence, KAM literature may be helpful in developing an understanding of business solutions. Secondly, since business solutions comprise innovative value creation processes and both product and service elements, both innovation and NPD and NSD are likely to play a role in the development, deployment, and redeployment of business solutions. Thirdly, the literature on business solutions obviously plays a role since it is the focus of this review. The precise review question is specified in the next section.

2.5 Review Question

This systematic review aims to answer the question:

How does the literature conceptualise the development, deployment, and redeployment of business solutions?

Drawing on the discussion above, I specify the components of the review question as follows. The development of business solutions spans from idea generation, over the development and sales and ends before the deployment of the solution. The deployment comprises the installation of the solution in the customer's environment and also includes post-deployment activities to adjust, support, and/or enhance the business solution. The redeployment of business solutions relates to the re-use of a business solution's components or the full business solution. In other words, it is about the replicability of a business solution.

After having embedded the focus of this review in the management literature and presented the review question, I describe the methodology adopted to answer this question in the next section.

3 Methodology

In conducting the systematic review, I followed the approach suggested by Tranfield et al. (2003) and Petticrew and Roberts (2006). Firstly, in the planning phase of the review, I carried out a scoping study to scope the field of inquiry and to derive a relevant review question. A review panel was formed. I developed a review protocol which was approved by the panel. Secondly, in the implementation phase, I followed the specifications of the review protocol in relation to search strategy, selection criteria, quality assessment, and data extraction/synthesis. Before I describe the steps of the approach in detail, I provide a rationale for the choice of a systematic review.

3.1 Rationale for a Systematic Review

In social sciences, systematic reviews are a rather new phenomenon. The methodology of the systematic review is an 'evidence-informed approach' and has its origins in medical science and healthcare (Tranfield et al., 2003). In contrast to a traditional narrative literature review, a systematic review must be conducted according to a precise review protocol and thus provide an "audit trail of the reviewers decisions, procedures, and conclusions" (Cook et al., 1997, in Tranfield et al., p. 209). It has to make its methods of selecting and evaluating literature explicit.

Conducting a systematic review is valuable for predominantly three reasons. Firstly, doing a review in a rigorous and transparent way minimises the weaknesses of a traditional narrative-based review. The latter is criticised of suffering from providing a partial picture, stemming from the reviewers' various biases such as "their own pet theories, […] funders, […or] the perceived need to produce positive findings in order to get published" (Petticrew and Roberts, 2006, p. 5). Secondly, single studies are seldom conclusive and "the amount of conflicting information often makes deciding where the 'balance of evidence' on any question lies difficult" (Petticrew and Roberts, 2006, p. 22). The systematic approach offers decision makers and researchers alike an opportunity to draw on evidence which has been prioritised in terms of relevance and quality (Tranfield et al., 2003). Thirdly, the systematic review may provide opportunities to challenge the established paradigms and 'schools of thought' by a thorough investigation of the underpinning evidence and as a result develop directions

to advance theory building (Petticrew and Roberts, 2006). The details of this review's research strategy are given in the following.

3.2 Review Panel

To contribute to the quality and validity of the systematic review, I drew on a review panel consisting of both topic and methodology experts. The review panel supported "direct the process […] and resolve any disputes over the inclusion and exclusion of studies" (Tranfield et al., 2003, p. 214). Table 1 gives an overview of the panel members and their respective roles.

Table 1: Systematic Review Panel

Person	Title/Organisation	Role
Dr Uta Jüttner	Senior Lecturer, Cranfield School of Management	Supervisor and subject expert: provided literature recommendations and gave feedback on a draft of the review
Dr Stan Maklan	Reader, Cranfield School of Management	Supervisor and subject expert: provided literature recommendations and gave feedback on a draft of the review
Dr Emma Macdonald	Senior Research Fellow, Cranfield School of Management	Subject expert: provided literature recommendations
Dr Emma Parry	Principal Research Fellow, Cranfield School of Management	Methodology expert: provided support on the search methodology
Prof Stefan Michel	Professor of Marketing and Service Management, IMD	Subject expert: provided literature recommendations
Ms Heather Woodfield	Information Specialist for Social Sciences, Kings Norton Library, Cranfield University	Literature search expert: provided support on the search methodology (search strings in particular)

After the panel had approved the review protocol, I started the literature search as outlined in the next section.

3.3 Search Strategy

My search strategy comprised the identification of keywords and search strings. I searched three databases and identified further publications via cross-referencing and recommendations of my panel members.

3.3.1 Keywords and Search Strings

My review question contains four main components. These are (1) business solutions and their (2) development, (3) deployment, and (4) redeployment. As outlined in chapter 2, business solutions incorporate aspects of, amongst others, servitisation,

relationships with customers and additional stakeholders. The keywords pertaining to the review question's component of business solutions are therefore decomposed into these three areas as well as into a number of alternative terminologies relating to business solution offerings, as shown in Table 2. Apart from a thematic coherence, this decomposition had the advantage of being able to form respective combined search strings, which were manageable in terms of search results (cf. Table 5). The development, deployment, and redeployment of business solutions form an iterative process whose stages are interlinked and partly overlapping. Some of the respective keywords for these individual review question components, therefore, may relate to several components. For example, the keywords 'innovat*', allocated to development, and 'life cycle', allocated to redeployment, may be relevant to all three components, which are development, deployment, and redeployment. They have, however, only been allocated to that component to which they are most pertinent since a one-fold allocation covers all hits and a threefold allocation would have led to duplicates only.

Table 2: Keywords

Review Question Component		Keywords
business solutions	business solution or related offerings	integrated solution*, customer solution*, product-service-system*, industrial service*, system* selling, hybrid offer*, complex product system*, extended product*, functional product*, hybrid product*, product related service*
	servitisation	serviti?ation, service transition, service integration
	customer focus aspect	key account, customer-supplier interdependen* OR customer-supplier dependen*
	network focus aspect	value system*, value network*, value constellation*
development		develop*, innovat*, design*, improve*, launch*, generat*, creat*, defin*, commerciali*, form*, emerge*, initiat*
deployment		deploy*, implement*, integrat*, cutstomi*,
redeployment		redeploy*, redesign*, post-deploy*, replicat*, life cycle, lifecycle phase, stage

Based on the above keywords, I developed the following individual search strings as shown in Table 3 and Table 4[2]. The search strings include truncations, wildcards, and proximity operators to contribute to the maximum inclusion of relevant studies.

[2] Table 3and Table 4 show the search strings for ABI/Inform Global. For EBSCO the proximity operator w/1 was changed to w1.

Table 3: Individual Search Strings for Business Solutions

Business Solutions (1)	Business Solutions (2)	Business Solutions (3)	Business Solutions (4)
integrated w/1 solution* OR customer w/1 solution* OR product-service-system* OR industrial w/1 service* OR system* w/1 selling OR hybrid w/1 offer* OR complex w/1 product w/1 system* OR extended w/1product* OR functional w/1 product* OR hybrid w/1 product* OR product w/1 related w/1 service*	serviti?ation OR service w/1 transition OR service w/1 integration	key w/1 account OR customer-supplier w/1 interdependen* OR customer-supplier w/1 dependen*	value w/1system* OR value w/1 network* OR value w/1 constellation*

Table 4: Individual Search Strings for Development, Deployment, and Redeployment

Development (a)	Deployment (b)	Redeployment (c)
develop* OR innovat* OR design* OR improve* OR launch* OR generat* OR creat* OR defin* OR commerciali* OR form* OR emerge* OR initiat*	deploy* OR implement* OR integrat* OR cutstomi*	redeploy* OR redesign* OR post-deploy* OR replicat* OR life w/1 cycle OR phase OR stage

The operation of the above search strings is illustrated in Table 5. Keyword searches were restricted to abstracts since searching full texts extended the search beyond the direct relevance of the review question and was not possible because bibliographic and full text electronic resources were not capable of tracking the large quantity of search results.

Table 5: Combined Search Strings

	Development (a)	Deployment (b)	Redeployment (c)
Business Solution (1)	(1) AND* (a)	(1) AND (b)	(1) AND (c)
Business Solution (2)	(2) AND (a)	(2) AND (b)	(2) AND (c)
Business Solution (3)	(3) AND (a)	(3) AND (b)	(3) AND (c)
Business Solution (4)	(4) AND (a)	(4) AND (b)	(4) AND (c)

* AND refers to the Boolean connector.

3.3.2 Databases

I searched the databases ABI/Inform Global and EBSCO Business Source Complete during the summer of 2012. A description of them is given in Table 6. ABI and EBSCO are the most comprehensive business databases which cover a wide time period. Although there is a degree of overlap between the two databases, to ensure thoroughness it is worthwhile to use both since some journals are covered in only one of

the two. The databases are appropriate in that my research covers the literature of business solutions, RM and innovations. All literature is indexed by these two prominent subject databases and hence it would be redundant to include publisher databases such as ScienceDirect or Emerald, etc.

Table 6: Description of Databases

Database	Description
ABI/Inform Global	Contains a wide range of information covering over 3,750 publications in business and economics
EBSCO Business Source Complete	The world's largest full text database covering 2,950 scholarly business journals and comprehensive full text coverage for regional business publications

3.3.3 Cross-Referencing and Panel Recommendations

Cross-referencing and panel recommendations were used as an additional way to search for relevant literature. The literature identified through these mechanisms subsequently went through the same selection criteria and quality assessment to be finally selected for the systematic literature review.

3.4 Selection Criteria for Relevant Studies

The search based on the above mentioned combined search strings resulted in 2,315 papers (cf. Table 13). I applied formal criteria to identify which articles were selected for review (cf. Table 7, Table 8,

Table 9). In a first step, I looked at the title, then at the abstract, before I considered the full text. From my scoping study as well as additional reading, I assumed that the number of articles addressing my review question was rather small. The assumption was confirmed in the process of conducting this review. Hence, the relevancy to the review question was by far the most important criterion and I did not restrict the review to any methodology, industry or geographical location. Considering the research type, conceptual, empirical, and practitioner papers had the potential to provide a valuable contribution to answering my review question.

Table 7: Selection Criteria for Titles

Criterion	Inclusion	Exclusion	Rationale
Relevance for review question	Studies addressing the following questions: ・What are the processes, stages or phases of the on-going development of business solutions? ・Which are the relevant actors in the emergence and on-going development of business solutions? ・Which interaction forms help us to understand the emergence and on-going development of business solutions? empirical papers must directly relate to the concept of business solutions	studies not addressing the questions for inclusion, empirical papers without a reference to the concept of business solutions	answer review question
Date of publi-cation	from 1960	before 1960	the origin of business solution literature, i.e. systems selling, started in 1960
Language	English	all except for English	English is considered as the universal language for academic publications
Scientific Field	social sciences, in particular marketing and innovation	natural sciences, computer sciences, engineering	the review question relates to these fields
Type of publi-cation	scholarly articles (empirical, conceptual & practitioner)	non-scholarly articles, general press articles, conference papers and proceedings, working papers, reports, theses, books, book chapters	to contribute to a certain level of quality of the publications; general press articles might be of low quality, conference papers are virtually impossible to identify and good papers usually turn into articles later, working papers are not peer-reviewed and good papers usually turn into articles later, reports and theses are difficult to search reliably and might not be possible to obtain, books and book chapters cannot be searched systematically

Table 8: Selection Criteria for Abstracts

Criterion	Inclusion	Exclusion	Rationale
Relevance for review question	Studies addressing the following questions: ・ What are the processes, stages or phases of the on-going development of business solutions? ・ Which are the relevant actors in the emergence and on-going development of business solutions? ・ Which interaction forms help us to understand the emergence and on-going development of business solutions? empirical papers must directly relate to the concept of business solutions	studies not addressing the questions for inclusion, empirical papers without a reference to the concept of business solutions	answer review question
Scientific Field	social sciences, in particular marketing and innovation	natural sciences, computer sciences, engineering	the review question relates to these fields

Table 9: Selection Criteria for Full Texts

Criterion	Inclusion	Exclusion	Rationale
Relevance for review question	Studies addressing the following questions: ・ What are the processes, stages or phases of the on-going development of business solutions? ・ Which are the relevant actors in the emergence and on-going development of business solutions? ・ Which interaction forms help us to understand the emergence and on-going development of business solutions? empirical papers must directly relate to the concept of business solutions	studies not addressing the questions for inclusion, empirical papers without a reference to the concept of business solutions	answer review question

Studies which met the selection criteria subsequently were evaluated against the quality appraisal criteria presented in the next section.

3.5 Quality Appraisal

Once the relevant papers were identified, they were assessed regarding their quality. Due to differences in terms of purpose and methodology, different criteria were established for different types of papers: Conceptual (Table 10), empirical – qualitative (Table 11), practitioner (Table 12) and empirical – quantitative. Since no empirical – quantitative paper was identified, the quality criteria for this type of paper are not

presented here but in Appendix A. If a paper had used mixed-methods it would have been evaluated considering both the criteria for qualitative and quantitative papers. Except for practitioner papers, the quality criteria are taken from Huff (1999).

Table 10: Criteria for Conceptual Papers

	1	2	3	4	5
Is the purpose of the research adequately established?					
Is the need for (or purpose of) theory development well established?					
Is previous theory adequately summarised?					
Is the author's contribution to theory significant?					
Is it well organised and clear?					
Is it adequately linked back to the literature?					

1=Not at all. 2=Only to a limited extent. 3=At an acceptable level. 4=To a significant level. 5=Completely

Source: Huff (1999, p.158)

Table 11: Criteria for Qualitative Papers

	1	2	3	4	5
Is the purpose of the research adequately established?					
Are the duration and intensity of observation clear?					
Are the nature of the site, and key players, adequately discussed?					
Are methods of collecting and analysing of data adequately described?					
Does the writer convince the reader that he or she was able to gather information about key events from appropriate sources?					
Is there evidence that informants trusted the researcher and were likely to honestly share information with the researcher?					
Has the author adequately considered alternative interpretations of the data presented?					
Is there evidence of systematically considering evidence that contradicts the author's interpretations?					

1=Not at all. 2=Only to a limited extent. 3=At an acceptable level. 4=To a significant level. 5=Completely

Source: Huff (1999, p.158)

Table 12: Criteria for Practitioner Papers

	1	2	3	4	5
Is the purpose of the research adequately established?					
Is the author's contribution to practise significant?					
Is it well organised and clear?					
Is it based on credible empirical and/or anecdotal evidence OR does it supported by theory?					

1=Not at all. 2=Only to a limited extent. 3=At an acceptable level. 4=To a significant level. 5=Completely

As shown in the tables above, all criteria were assessed on a scale from one (not at all) to five (completely). Selected papers had to score at least a two in relation to each criterion. The process of selection is presented in the next section.

3.6 Selected Articles

The search and evaluation process as described above resulted in a final number of 31 papers. This selection came about as follows. The database search results with the combined search strings (cf. Table 5) are presented in Table 13. The results stem from a search restricted to abstracts and scholarly journals as outlined above. To identify duplicates and for review, the results were exported to a reference software package, Endnote.

Table 13: Results of Combined Search Strings Per Database

Search Strings	ABI/Inform Global	EBSCO Business Source Complete	Total per combined search string	Total after elimination of duplicates per combined search string
(1) AND* (a)	857	684	1,541	1,182
(2) AND (a)	180	129	309	261
(3) AND (a)	122	98	220	166
(4) AND (a)	323	196	519	456
(1) AND (b)	438	399	837	737
(2) AND (b)	203	140	343	314
(3) AND (b)	55	45	100	76
(4) AND (b)	99	63	162	140
(1) AND (c)	108	93	201	171
(2) AND (c)	23	11	34	32
(3) AND (c)	14	15	29	24
(4) AND (c)	34	18	52	45
Totals	2,456	1,891	4,347	3,604
			Total after elimination of all duplicates	2,315**

* AND refers to the Boolean connector.
** 2,416 duplicates were identified via the Endnote function ‘find duplicates’, 99 were identified manually.

Subsequently, the selection of papers was done as shown in Table 14. A list of the selected studies is given in Appendix B. The selected papers’ quality assessment is provided in Appendix C.

Table 14: Selection Process

Title screening	• Start with 2,315 articles after elimination of all duplicates. • 1,811 titles related to completely different research areas. Examples of titles are: *"Condiment paprika research in Australia", "Debt-equity hybrids to spur new wave offerings", "Balancing work life & home life: What can organisations do"?* • 336 titles pertained to the research area but did not refer to the review question: Examples of titles are: *"Assessing perceived quality in industrial service settings: Measure development and application", "Building knowledge creating value networks", Strategic account management: conceptualizing, integrating, and extending the domain from fluid to dedicated accounts"* • 2 articles were eliminated because they were not English. • Elimination of papers which did not address the review question by title: 2,194, retaining 166 records.
Abstract screening	• Start with 166 articles after title screening. • 39 articles were eliminated because they related to the field of engineering, 25 were eliminated because they related to computer science, 9 were eliminated because the addressed a different research area, and 24 were eliminated because they related to the research area but did not refer to the review question, i.e. they did not refer to any of the questions as defined in the inclusion criteria, retaining 69 articles.
Full text screening	• For 99 articles a full text screen was conducted (69 resulted from the search string, 24 from cross-referencing, and 6 from recommendations). • 9 articles were eliminated because they related to the field of engineering, 7 were eliminated because they addressed a different research area, 46 were eliminated because the related to the research area but did not refer to the review question, i.e. they did not relate to any of the questions as defined in the inclusion criteria, retaining 37 articles.
Quality screening	• For 37 articles a quality screening was conducted. • 6 articles (3 empirical-qualitative and 3 practitioner) were eliminated due to issues with trustworthiness, i.e. the papers were not based on credible evidence. • From the final selection of 31 articles, 22 articles were identified via the database search, 7 via cross-referencing (Grönroos, 2008; Grönroos and Ravald, 2011; Vargo and Lusch, 2004; Vargo and Lusch, 2008; Gebauer, Fleisch and Friedli, 2005; Mathieu, 2001; Oliva and Kallenberg, 2003), and 2 via recommendations (Macdonald et al, 2011; Lusch et al., 2008).

It is noteworthy that the number of papers included in the final selection is small. While this might seem conspicuous in the first place, a comparison with two other recent systematic reviews lets this number appear reasonable. Velamuri et al. (2011) conducted a systematic literature review on hybrid value creation, covering all available literature related to value creation by a combination of products and services. The authors identified a total of 169 studies. Baines et al.'s (2007) systematic review on the state-of-the art in research relating to PSSs yielded a total of 40 studies. Thus, when compared to the numbers of identified studies of very broad reviews on hybrid value generation or PSSs, the specific focus of this review, which is the development, deployment, and redeployment of business solutions, rationalises the small number of 31 studies.

After all studies were identified, I started with the data extraction as outlined in the next section.

3.7 Data Extraction

Relevant data were extracted to support the subsequent analysis and synthesis. The data extraction was done according to a standardised data extraction form for all studies (cf. Table 15). The individual data extraction sheets are presented in Appendix D.

Table 15: Data Extraction Form

Citation
Title:
Author(s):
Journal:
Year:
Key words:
Study Background
Type of research (conceptual, empirical – qualitative, empirical – quantitative):
Epistemological approach (positivist, relativist, social constructionist)*:
Theoretical foundation:
Methodology
Sample selection, size and characteristics:
Data collection and analysis method(s):
Evidential Contribution
Research question/purpose:
Key findings:
Limitations and scope for further research:
Synthesis/Key contribution(s) to review question
Processes/Phases of Development & Deployment:
Redeployment:
Actors:
Interaction Form(s):
Comments/observations/notes:

* The epistemological approach was classified based on Easterby-Smith et al.'s (2008) terminology

After all data was extracted, I developed their synthesis as presented in the next section.

3.8 Synthesis

The information extracted from the final papers selected for the review was used to present a coherent synthesis. Guided by the review question – how does the literature conceptualise the development, deployment, and redeployment of business solutions – and the information contained in the selected articles, I developed a fourfold structure for the synthesis and presentation of the findings. Firstly, I investigated the phases and processes of the development and deployment of business solutions. Secondly, I considered the redeployment of business solutions. Thirdly, I examined the actors involved in the development, deployment and redeployment of business solutions. Actors can relate to the firm and the individual level. Thus, actors may include the

supplier firm and its employees, the customer firm and its employees as well as firms from the customer and supplier network and their employees. Fourthly, I considered the interaction forms of the actors involved. Interaction forms relate to mutual or reciprocal actions where two or more parties have an effect upon one another (Grönroos and Ravald, 2011).

This structure is justified on the basis of the review question as follows. The structure's first two constituents are explicitly contained in, and hence directly derived from, the review question. The structure's third and fourth component was deemed central to the review question because of the conceptualisation of business solutions, as discussed in sub-chapter 2.3. While earlier research considered the provision of business solutions as product-, and supplier-centred, more recently, business solutions have been conceptualised as relationship-centred and as created in interactive processes. Therefore, both the actors involved as well as their interaction forms are a crucial component of the conceptualisation of the development, deployment, and redeployment of business solutions.

Before I present the conceptual findings in chapter five, an overview of the selected articles' descriptive characteristics is given in the next chapter.

4 Descriptive Account of Literature

In the following, I provide a synopsis of the characteristics of the literature reviewed. In particular, I present the characteristics of the journals, the articles' chronological distribution, the key authors and countries of origin, the epistemological stances and theoretical foundations adopted by the authors, the types of articles and methods used, information on geographical location, industries investigated, and descriptive thematic contributions.

As described in the previous chapter, all articles are from scholarly journals and were selected via a database search, cross-referencing and panel recommendations. This descriptive account of the literature uses actual figures only and forgoes to present percentages or statistical analyses due to the small number of articles included.

4.1 Journal Characteristics

Table 16 shows that the articles reviewed come from 17 different journals. With eight articles from the 'Industrial Marketing Management', this journal is the most prominent in the review. Related to this is the prominence of contributions from marketing, coming from the aforementioned journal, the 'Journal of Marketing' and the 'Journal of Business & Industrial Marketing'. Further research areas included are innovation represented by the 'European Journal of Innovation Management' and 'R&D Management' and general management represented by the 'European Management Journal', the 'European Business Review', and the 'MIT Sloan Management Review'. Service management is represented by the 'Journal of Service Management' and the 'European Journal of Service Industry Management'. Journals from the fields of operations, project and change management, and organisational behaviour are also present. Thus, a broad range of research areas is represented.

Table 16: Journal Occurrences and Ranking

Journal Name	Occurrence	Ranking*
Industrial Marketing Management	8	3*
Journal of Service Management	4	2*
Journal of Marketing	3	4*
International Journal of Operations & Production Management	3	3*
European Journal of Innovation Management	1	1*
European Management Journal	1	1*
Industrial and Corporate Change	1	3*
International Journal of Project Management	1	2*
International Journal of Service Industry Management	1	not ranked
Journal of Business & Industrial Marketing	1	1*
MIT Sloan Management Review	1	4*
Organizational Dynamics	1	3*
R&D Management	1	3*
The Business Review	1	not ranked
Journal of the Academy of Marketing Science	1	4*
IBM Systems Journal	1	not ranked
European Business Review	1	2*

*according to Cranfield School of Management Ranking February 2012 (9th ed.)

Considering the quality of the journals as per the Cranfield School of Management Ranking 2012, five contributions come from four-star journals, 14 originate from three-star journals, six from two-star, three from one-star journals, and three contributions comes from journals which are not ranked. Except for the 'MIT Sloan Management Review', all journals are peer-reviewed.

4.2 Chronological Distribution

Examining the chronological distribution of publications (cf. Figure 3) reveals that all articles reviewed were published within the last 11 years. This underlines that the development, deployment, and redeployment of business solutions in particular, and the general area of business solutions in general, is a young and emergent field of research.

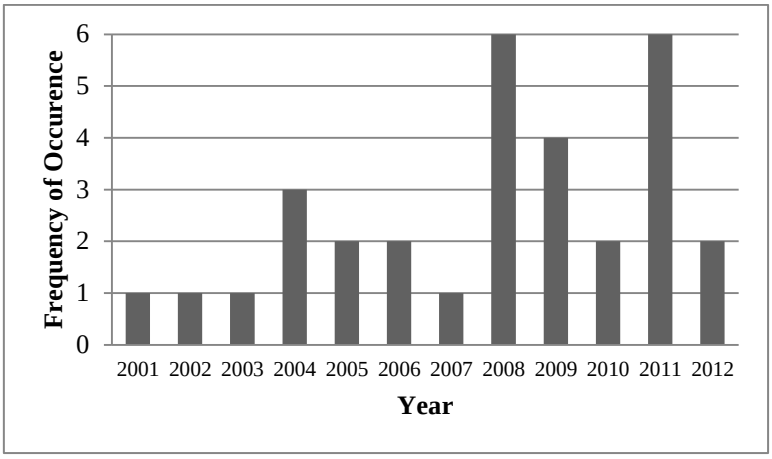

Figure 3: Chronological Distribution

4.3 Key Authors and Countries of Origin

There are seven authors who published more than one of the selected articles. Davies, Lusch, Vargo, and Windahl are first authors or co-authors of three articles included in this review and Brady, Grönroos, and Lakemond are first authors or co-authors of two articles included in the review. Figure 4 shows that the majority of contributions come from Finland, the United Kingdom, and the United States.

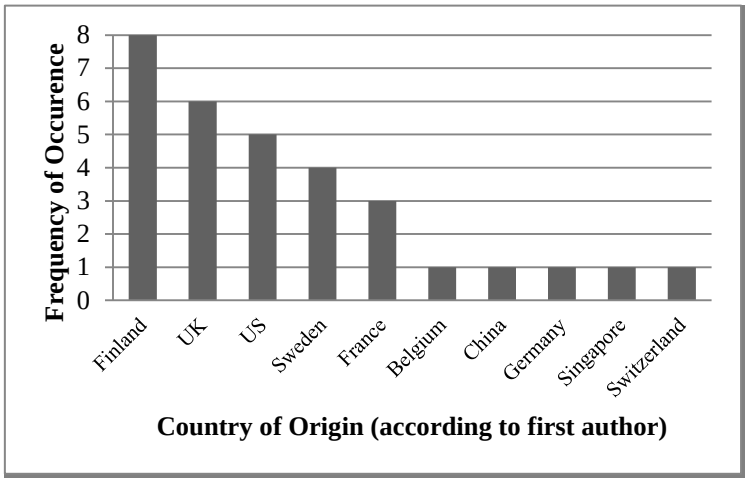

Figure 4: Countries of Origin

4.4 Epistemological Stances and Theoretical Foundations Adopted

Table 17 shows the epistemological stances and theoretical foundations adopted by the studies reviewed. While only one study (Matthyssens and Vandenbempt, 2008) explicitly stated its epistemological approach, an in-depth investigation of the papers

allowed me to derive it. I found hints in the methodologies adopted as well as in the claims made.

Table 17: Philosophical and Theoretical Assumptions

Study	Epistemological Stance*	Theoretical Foundation
Bastl et al. (2012)	relativist	-
Brady et al. (2005)	relativist	-
Brax and Jonsson (2009)	relativist	-
Cova and Salle (2008)	social constructionist	SDL
Davies (2004)	relativist	theory of the growth of the firm, value stream theory
Davies et al. (2006)	relativist	-
Galbraith (2002)	relativist	-
Gebauer et al. (2005)	relativist	-
Grönroos (2008)	relativist	service logic
Grönroos and Helle (2010)	relativist	service logic
Grönroos and Ravald (2011)	relativist	service logic
Hakanen and Jakkola (2012)	relativist	SDL
Kindström and Kowalkowski (2009)	relativist	SDL
Lusch et al. (2008)	relativist	SDL
Macdonald et al. (2011)	relativist	SDL, means-end theory
Mathieu (2001)	relativist	-
Matthyssens and Vandenbempt (2008)	social constructionist	-
Ngai et al. (2008)	relativist	-
Ojasalo (2009)	relativist	-
Oliva and Kallenberg (2003)	relativist	-
Pawar et al. (2009)	relativist	-
Salonen (2011)	social constructionist	SDL
Storbacka (2011)	social constructionist	SDL
Töllner et al. (2011)	relativist	SDL, role theory
Tuli et al. (2007)	relativist	SDL & goods-dominant logic
Ulaga and Reinartz (2011)	relativist	resource-based view
Vargo and Lusch (2004)	relativist	SDL
Vargo and Lusch (2008)	relativist	SDL
Windahl and Lakemond (2006)	social constructionist	-
Windahl and Lakemond (2010)	social constructionist	network theory
Windahl et al. (2004)	relativist	SDL

* The epistemological approach was classified based on Easterby-Smith et al.'s (2008) terminology

Concerning epistemology, the majority of studies (25) took a relativist stance. A minority (6) is characterised by a social constructionist approach. In terms of theoretical foundation, it is noteworthy that 13 studies did not refer to any theory, but are solely

based on empirical data. Among those authors who adopted a perspective, service-dominant logic (SDL) is by far the most prominent. In this respect, it is noteworthy that three of the 11 papers that ascribed to it are conceptual papers which have the development of SDL as their focus. Likewise, two of the tree papers referring to service logic have this perspective as a focus of their conceptual paper.

4.5 Types of Articles and Methods Used

Two articles were practitioner-oriented, six were of conceptual nature. The remaining 23 were empirical, applying qualitative methods (cf. Table 18).

Table 18: Methods Used

Study	Research Method	Subjects of Empirical Investigation
Bastl et al. (2012)	multiple case studies	1 supplier firm, 2 customer firms
Brady et al. (2005)	multiple case studies	6 supplier firms
Brax and Jonsson (2009)	multiple case studies	2 supplier firms, 7 customer firms
Cova and Salle (2008)	multiple case studies	2 supplier firms
Davies (2004)	multiple case studies	6 supplier firms
Davies et al. (2006)	- (practitioner)	-
Galbraith (2002)	- (conceptual)	-
Gebauer et al. (2005)	interviews	30 supplier firm managers
Grönroos (2008)	- (conceptual)	-
Grönroos and Helle (2010)	- (conceptual)	-
Grönroos and Ravald (2011)	- (conceptual)	-
Hakanen and Jakkola (2012)	multiple case studies	8 supplier firms, 5 customer firms
Kindström and Kowalkowski (2009)	multiple case studies	10 supplier firms
Lusch et al. (2008)	- (practitioner)	-
Macdonald et al. (2011)	single case study	1 supplier firm (interviews were conducted with its customers)
Mathieu (2001)	interviews	9 supplier & 8 customer firm managers
Matthyssens and Vandenbempt (2008)	multiple case studies	8 supplier firms
Ngai et al. (2008)	multiple case studies	2 supplier firms
Ojasalo (2009)	interviews	37 supplier firm managers
Oliva and Kallenberg (2003)	multiple case studies	11 supplier firms
Pawar et al. (2009)	multiple case studies	2 supplier firms
Salonen (2011)	multiple case studies	2 supplier firms
Storbacka (2011)	multiple case studies	10 supplier firms
Töllner et al. (2011)	interviews	9 customer firms

Tuli et al. (2007)	interviews, focus groups	interviews: 49 supplier firm managers, 55 customer firm managers; focus groups: 21 supplier firm managers
Ulaga and Reinartz (2011)	interviews	22 supplier firm managers
Vargo and Lusch (2004)	- (conceptual)	-
Vargo and Lusch (2008)	- (conceptual)	-
Windahl and Lakemond (2006)	multiple case studies	2 supplier firms
Windahl and Lakemond (2010)	multiple case studies	2 supplier firms
Windahl et al. (2004)	multiple case studies	3 supplier firms

Considering the emerging nature of the field of business solutions and the few studies available, it is hardly surprising that empirical research has relied on qualitative methods. 17 studies were of exploratory nature. The majority (16) used multiple case research, drawing on the data sources from multiple interviews (16) and in seldom cases in addition non-participant observation (Cova and Salle, 2008; Hakanen and Jaakkola, 2012; Storbacka, 2011), participant observation (Hakanen and Jaakkola, 2012) and archival records (Brax and Jonsson, 2009; Ngai et al., 2008; Pawar et al., 2009). Of the 17 case studies, 13 were exploratory, three descriptive (Brady et al., 2005; Davies, 2004; Windahl and Lakemond, 2006), and one (Ngai et al., 2008) explanatory. Eight were cross-sectional, nine longitudinal. The most cited authors in relation to the case study method are Yin (1984; 2003) (9), Eisenhardt (1989) (6), Eisenhardt and Gräbner (2007) (2), and Meredith (1998) (2). A minority of empirical studies (6) used interviews. A total of 16 from the 23 empirical articles draw exclusively on research participants from supplier firms.

4.6 Geographical Information and Industries Investigated

Information on the geographical locations in which the studies were conducted is vague since 11 of the 23 empirical articles state that ‘international companies’ were the subject of investigation and three of them state that the companies investigated were European. Only nine studies mention the exact countries in which the research was undertaken. These countries are China, Finland, France, Germany, Sweden, Switzerland, and UK (3). Regarding the industries investigated, Table 19 shows that the majority of studies were done in the manufacturing (13) and the capital goods (9) industry.

Table 19: Industries Investigated

Empirical Studies	Industries
Bastl et al. (2012)	manufacturing
Brady et al. (2005)	capital goods
Brax and Jonsson (2009)	manufacturing
Cova and Salle (2008)	manufacturing & capital goods
Davies (2004)	capital goods
Gebauer et al. (2005)	manufacturing
Hakanen and Jaakkola (2012)	manufacturing
Kindström and Kowalkowski (2009)	manufacturing
Macdonal et al. (2011)	manufacturing
Mathieu (2001)	manufacturing
Matthyssens and Vandenbempt (2008)	manufacturing
Ngai et al. (2008)	capital goods
Ojasalo (2009)	manufacturing
Oliva and Kallenberg (2003)	manufacturing
Pawar et al. (2009)	aerospace
Salonen (2011)	capital goods
Storbacka (2011)	manufacturing & services
Töllner et al. (2011)	capital goods
Tuli et al. (2007)	IT, healthcare, real estate, financial services
Ulaga and Reinartz (2011)	manufacturing
Windahl and Lakemond (2006)	capital goods
Windahl and Lakemond (2010)	capital goods
Windahl et al. (2004)	capital goods

4.7 Descriptive Thematic Contributions

As discussed in the introduction, there are different variants of the business solution concept. Thus, it is important to know how the studies reviewed understand the business solution concept. Table 20 gives an overview of the studies' label for business solution and their definition of it. Except for Grönroos and Helle (2010), none of the conceptual article referred to business solutions directly. Therefore, the remaining five conceptual contributions are not listed in the table. The same applies to the practitioner article of Lusch et al. (2008).

Table 20: Conceptualisation of Business Solution Used

Study	Business Solution Label Used	Definition
Bastl et al. (2012)	integrated solution	“an integrated solution combines products and services into a seamless offering that addresses customer’s business or operational needs.” (p.652)
Brady et al. (2005)	integrated solution	"to meet user needs means combining products and systems with services in order to specify, design, deliver, finance, maintain, support and operate a system throughout its life cycle." (p. 360)
Brax and Jonsson (2009)	integrated solution	"a bundle of physical products, services and information, seamlessly combined to provide more value that the parts alone, that addresses customer's needs in relation to a specific function or task in their business system; it is long-term oriented, integrates the provider as part of the customer’s business system, and aims at optimising the total cost for the customer" (p. 541)
Cova and Salle (2008)	solution	see Tuli (2007) and "helping a customer to develop his business in existing or new markets" (p.272)
Davies (2004)	integrated solutions	"in contrast to product bundling approaches, integrated solutions comprise product and service components that are customised and priced according to a specific customer’s needs" (Hax and Wilde, 1999; in Davies, 2004, p. 736)
Davies et al. (2006)	integrated solutions	Solving a customer's business problem by "providing services to design, integrate, operate, and finance a product or system during its life cycle" (p. 40)
Hakanen and Jaakkola (2012)	customer-focused solution	"a process during which product, service, and/or knowledge components are integrated into offerings that meet needs of a specific customer or type of customer (Miller et al., 2002; Storbacka, 2011)." (p. 595)
Galbraith (2002)	solution	a bundle of products, software, and services, providing "more value than the customers can create by themselves by buying only the stand-alone products" (p. 194)
Gebauer et al. (2005)	industrial services	not specified
Grönroos and Helle (2010)	all offers of manufacturing firms	not specified
Kindström and Kowalkowski (2009)	industrial service offering	not specified
Macdonald et al. (2011)	outsourced manufacturing offering	not specified
Mathieu (2001)	service supporting the client	"services that support the client's action in relation to the supplier's product" (p. 39)
Matthyssens and Vandenbempt (2008)	solution	a supplier provides technical application integration and process management (acting as back office).
Ngai (2008)	CoPS	“high cost technology and software intensive products, systems and capital goods, which are manufactured in small batches or one-off projects (Hobday et al., 2000)" (p.421)
Ojasalo (2009)	industrial service	not specified

Oliva and Kallenberg (2003)	operational services	"taking over the end-user's maintenance or operating organisation" (p.170)
Pawar et al. (2009)	PSS	"a marketable set of products and services capable of jointly fulfilling a user's needs" (White et al, 1999; Mont, 2002; in Pawar et al., 2009, p. 474)
Salonen (2011)	solution	"individualised offers for complex customer problems that are interactively designed and whose components offer an integrative added value by combining products and/or services so that the value is more than the sum of the components" (Evanschitzky et al., 2011; in Salonen, 2011, p. 684)
Storbacka (2011)	integrated solution*	"longitudinal relational processes, during which a solution provider integrates goods, service and knowledge components into unique combinations that solve strategically important customer specific problems, and is compensated on the basis of the customer's value-in-use." (p.699)
Töllner et al. (2011)	customer solution	"customer/supplier relational processes comprising (1) customer requirements definition, (2) customisation and integration of goods and /or services and (3) their deployment, (4) post-deployment support, (5) signalling activities, and (6) inter-process management." (p.712)
Tuli et al. (2007)	customer solution	"a set of customer - supplier relational processes comprising (1) customer requirements definition, (2) customisation and integration of goods and /or services and (3) their deployment, and (4) post-deployment customer support, all of which are aimed at meeting customer's' business needs" (p.5)
Ulaga and Reinartz (2011)	hybrid offering	"products and services combined into innovative offerings (Shankar, Berry, and Dotzel, 2009, p. 95)"
Windahl and Lakemond (2006)	integrated solution	"a combination of physical products or services, or both, plus knowledge are used to provide a specific outcome fulfilling the customer's need." (p. 807)
Windahl and Lakemond (2010)	integrated solution	see Windahl and Lakemond (2006)
Windahl et al. (2004)	integrated solution	"physical products and services are combined to provide a specific outcome fulfilling the customer's need" (p.219)

*Even though Storbacka (2011) uses the label 'solution' throughout his article, he clearly states on p.699 that the article focuses on 'integrated solutions'

Studies coalesce around the notion that solutions focus upon customers' business problems or needs. This is not surprising given marketing studies' focus on customers since about 50 years. All authors using the label 'integrated solution' (see highlighted rows in Table 20) claim that a solution refers to a combination of product, and/or service and/or knowledge components. Only four studies (Salonen, 2011; Storbacka, 2011; Töllner et al., 2011; Tuli et al., 2007) point to a relational- and process-centred nature of business solutions in their definitions.

The next chapter's presentation of findings follows a fivefold structure. Table 21 shows which studies made major and minor contributions to which part of the findings. A contribution was classified as major (focal) when the study had the respective structural

component as its main focus. A contribution was classified as minor when the publication elaborated on the component as part of a study with a main focus other than the respective component.

Table 21: Contributions Per Sub-Theme

Study	Processes / Phases of Development	Processes / Phases of Deployment	Re-deployment	Actors Involved	Actors' Interaction Forms
Bastl. et al. (2012)				M	
Brady et al. (2005)	F	F		M	M
Brax and Jonsson (2009)			F	M	M
Cova and Salle (2008)				F	F
Davies (2004)			M	M	
Davies et al. (2006)			M	F	
Hakanen and Jaakkola (2012)				M	F
Galbraith (2002)			M	F	M
Gebauer et al. (2005)				M	
Grönroos (2008)				M	F
Grönroos and Helle (2010)				M	F
Grönroos and Ravald (2011)				M	F
Kindström and Kowalkowski (2009)	F	F		M	M
Lusch et al. (2008)				F	F
Macdonald et al. (2011)				M	M
Mathieu (2001)				M	
Matthyssens and Vandenbempt (2008)				M	
Ngai et al. (2008)				M	F
Ojasalo (2009)				M	
Oliva and Kallenberg (2003)				M	M
Pawar et al. (2009)	F	F		M	
Salonen (2011)			M	M	M
Storbacka (2011)	F	F	F	M	M
Töllner et al. (2011)	F	F	M	M	M
Tuli et al. (2007)	F	F	M	M	F
Ulaga and Reinartz (2008)				M	
Vargo and Lusch (2004)				M	F
Vargo and Lusch (2008)				M	F
Windahl and Lakemond (2006)				F	M
Windahl and Lakemond (2010)				F	F
Windahl et al. (2004)				M	

F= Focal Contribution, M = Minor Contribution

It can be seen that all studies contributed to a larger or lesser extent to the understanding of the actors involved in the development, deployment, and redeployment of business solutions. The majority also contributed to the interaction forms. A minority of six

studies provided specific knowledge on the processes or phases of the development and deployment. The redeployment was addressed by eight studies; however only two studies provided a major contribution.

After the findings have been considered in terms of their characteristics, their thematic contribution is discussed in the next chapter.

5 Findings

In this chapter, I summarise the literature's perspectives on the conceptualisation of the development, deployment, and redeployment of business solutions. The findings are structured according to the data extracted from the selected articles as per the data extraction forms. Evidence on the phases and processes of the development and deployment is divided into firstly, phases and processes of development, and secondly, phases and processes of deployment. Subsequently evidence on the redeployment is presented. Next, I address the intra- and inter-firm actors involved in the development, deployment, and redeployment of business solutions. Finally, I dwell on the interaction forms between these actors before I provide a summary.

5.1 Phases and Processes of the Development of Business Solutions

The development of business solutions is conceptualised as consisting of several processes and phases. An overview of them is given in Table 22. Before I start with the discussion related to business solutions, I define what is meant by 'process' and 'phase'. A business process is a structured set of activities designed to generate a particular output (Davenport, 1993). A phase "is a distinct period or stage in a process of change or forming part of something's development" (Oxford Dictionnaries, 2010). Hence, phase' and 'stage' can be considered as synonyms.

Table 22: Phases and Processes of the Development of Business Solutions

Study	Development of Business Solutions		
Kindström and Kowalkowski (2009)	**Market sensing**: identify sources for innovation internally and externally	**Development**: involve cross-functional teams and customers	**Sales**: focus on value-in-use
Tuli et al. (2007)		**Requirements definition**: identify customer problem	**Customisation and integration**: fit offering to customer's environment and align its individual components
Töllner et al. (2011)	**Signalling**: demonstrate expertise	**Requirements definition**: identify customer problem	**Customisation and integration**: fit offering to customer's environment and align its individual components
Brady et al. (2005)	**Strategic engagement**: discuss needs and priorities with customers	**Value proposition**: develop commercial framework	
Storbacka (2011)	**Develop solutions**: exploit customer insight and firm resources	**Create demand**: identify sales opportunities	**Sell solution**: exploit opportunities
Pawar et al. (2009)		**Define value**: Identify customer value proposition	**Design value**: develop offering and supplier network

Kindström and Kowalkowski (2009) suggest a process framework for the development of industrial service offerings. The framework is circular and comprises four overlapping, rather than linear discrete, stages. The stages which can be attributed to the development of the industrial service offering are market sensing, development, and sales. Market sensing takes place within the own firm and by engaging in a dialogue with customers. The development of the service offering requires intra-firm and cross-functional coordination. Moreover, the importance of customer involvement in the development is emphasised. The sales phase is about the commercialisation of the offering. A supplier's sales personnel must understand the customer's business process in order to be able to demonstrate the value-in-use of the service offering to the customer. Value-in-use is "a customer's outcome, purpose or objective that is achieved through service" (Macdonald et al., 2011, p. 671). In a similar vein, the sales personnel need to be knowledgeable about the service operations of their firm. One of the study's

case companies, for example, has regular breakfast meetings in which both sales personnel and service technicians participate.

Tuli et al. (2007) identify two relational processes within the development of a business solution, requirements definition, and customisation and integration. Requirements definition relates to the identification of the customer's recognised and unrecognised, and current and future business problems or needs. It involves conversations with a variety of actors in the customer firm and/or the customer network regarding the customer's processes and business model. Customisation is about "designing, modifying, or selecting products to fit into a customer's environment" (Tuli et al., 2007, p. 7). Integration refers to developing, adapting or choosing goods and services that work well with one another. In contrast to the customers in Tuli et al.'s (2007) study, the suppliers considered customisation and integration as the only process that conceptualises a business solution. Yet, the authors argue in favour of a conceptualisation from the customer perspective since they advance the view that the purpose of a business solution is to satisfy a customer's business needs. Building on Tuli et al.'s (2007) study, Töllner et al. (2011) investigate the actors of customer firms' buying centres. The authors confirm Tuli et al.'s (2007) findings but add an additional process to the development of business solutions, which is signalling and refers to a supplier's activities prior to the customer's choice of a supplier. Signalling means that a supplier should demonstrates "experience, competence, references, and commitment to reduce the customer's perceived purchase risk" (Töllner et al., 2011, p. 716). This is especially important when a bid is involved in which many suppliers compete to get the contract with the customer. In this respect, Töllner et al. (2011) further point out that presenting a customised offering that already addresses a customer's specific business problem supports to convince the customer. A further process which cannot be attributed to a single stage of the business solution life cycle, relates to inter-process management. Töllner et al. (2011) state that it is a framework for integrating the remaining processes and consists of four sub-processes, coordination, time management, incorporation and improvement, and proactive support. Like Töllner et al. (2011), Brady et al. (2005) suggest that suppliers and customers interact before the customer has selected a supplier. Using the term strategic engagement phase, the authors describe their activities as informal conversations to understand the customer's

business problem or needs before a bid is made. Brady et al. (2005) emphasise that senior management engages in these discussions. Following the strategic engagement phase, Brady et al. (2005) suggest the value proposition phase in which bid or offering activities take place. In this phase a cross-functional team of the supplier firm develops a solution offering addressing the needs identified in the prior phase. It contains a commercial framework defining the success factors and reward mechanisms. It includes the development of a shared understanding between the supplier and the customer "of how value will be measured in terms of pricing and margins, the volume and mix of products and services, capital costs, and distribution of risks" (Brady et al., 2005 , p. 363).

Storbacka (2011) proposes a solution business model framework, consisting of four phases of the solutions process and three sets of cross-functional categories. These categories consist of commercialisation, industrialisation and the 'solution platform'. Commercialisation refers to issues related to the customer interface, industrialisation relates to the efficient development and deployment of solutions, and the solution platform consists of "issues related to the overall management of the provider, such as finance, human resource, and information technology" (Storbacka, 2011, p. 701). The activities of the solution platform cannot be attributed to one phase but extend over the development, deployment, and redeployment of business solutions. Its responsibilities include, for example, strategic planning, such as defining customer segment and solutions portfolio management strategies, establishing the appropriate management system such as enabling cross-functional work, and providing infrastructure support, such as ERP and CRM systems. Concerning the development of business solutions, Storbacka (2011) suggests three phases, 'develop solutions', 'create demand', and 'sell solution'. While the former two phases refer to a firm's customer portfolio and hence to all business solutions of a firm, the latter is related to a specific customer and thus to a specific business solution. The first phase, 'develop solutions', "aims to combine customer insight with the firm's resources and capabilities in order to create solutions that make value creation possible for both the provider and its customers" (Storbacka, 2011, p. 702). The commercialisation part of the phase seeks to generate information on the customer's business processes. Value creation has to be seen from the customer perspective (Brady et al., 2005; Davies, 2004). The industrialisation part aims to create

solution components which can be produced in an effective manner and to develop solution configurations which "close the gap between identified value creation opportunities and the extant offerings" (Storbacka, 2011, p. 703). The 'create demand' phase intends to make the target customer segments aware of the solution offering. The commercialisation part of the phase aims to win sales leads while the industrialisation part strives to make sure that the provider is able to offer solutions efficiently and that these solutions are priced in accordance with the value they create for the customer segments. The 'sell solution' phase intends to convert recognised individual opportunities into orders. The commercialisation part of this phase aims to quantify the solution's value with the customer and price it accordingly. The industrialisation part focuses on a feasible configuration of the solution.

In contrast to Kindström and Kowalkowski (2009), Tuli et al. (2007), Töllner et al. (2011), Brady et al. (2005), and Storbacka (2011), Pawar et al. (2009) suggest to include the network in the development. They argue that the development of a PSS incorporates a supplier's network partners. More precisely, the authors suggest that the PSS should be designed simultaneously with the network of firms that creates the PSS. Pawar et al. (2009) conceptualise the supplier network as being close to the concept of a virtual enterprise (Bititci et al., 2005; Camarinha-Matos, 2004; Davidow and Malone, 1992). Based on the assumption that the aim of a PSS is to create value-in-use (Baines et al., 2007), Pawar et al. (2009) suggest that the first stage of a PSS development is to define value, and the second stage is to design value. During the value definition phase, a value proposition addressing the customer's business needs has to be defined. The value proposition is defined from the customer perspective, "but without losing sight of the value for other stakeholders" (Pawar et al., 2009, p. 471). Simultaneously, a cost estimation and risk assessment for the lifetime of the PSS offering has to be undertaken. In the design value phase, the integrated system is designed consisting of products and service which create the previously defined value. This requires designing the supplier network regarding the capabilities required in order to complement the core competencies of the supplier firm.

5.2 Phases and Processes of the Deployment of Business Solutions

Similar to the development of business solutions, the deployment is conceptualised as consisting of several phases and processes, as visualised in Table 23. All authors with major contributions in this area (Brady et al., 2005; Kindström and Kowalkowski, 2009; Pawar et al., 2009; Storbacka, 2011; Töllner et al., 2011; Tuli et al., 2007) agree that the phases and processes of the deployment of business solutions typically last for a long time.

Table 23: Phases and Processes of the Deployment of Business Solutions

Study	Deployment of Business Solutions	
Kindström and Kowalkowski (2009)	**Delivery**: implement service offering	
Tuli et al. (2007)	**Deployment**: implement solution in customer environment	**Post-deployment support**: maintain and upgrade solution
Töllner et al. (2011)	**Deployment**: implement solution in customer environment	**Post-deployment support**: maintain and upgrade solution
Brady et al. (2005)	**Systems integration**: implement the solution	**Operational services phase**: manage solution throughout its life cycle
Storbacka (2011)	**Deliver solution**: ensure customer value creation and firm value capture	
Pawar et al. (2009)	**Deliver value**: manage supplier network and define performance measures	

The final stage of Kindström and Kowalkowski's (2009) process framework relates to the deployment of an industrial service offering and is labelled delivery stage. The authors argue that the offering is created in interaction with the customer. Since the life cycle of an individual business solution is often very long, "service processes are created over time and relationship longevity, which includes trust and commitment, becomes a factor" (Kindström and Kowalkowski, 2009). Trust and commitment are constructs from the relationship marketing domain. Trust relates to "confidence in an exchange partner's reliability and integrity" (Palmatier, 2008, p. 99) and commitment is "an enduring desire to maintain a valued relationship" (Palmatier, 2008, p. 99).

This is in line with Tuli et al. (2007) who state that "delivering solutions is better viewed as an ongoing relationship between a supplier and a customer than as a 'one-off'

project" (p.7). Tuli et al. (2007) and Töllner et al. (2011) propose two processes which can be attributed to the deployment of business solutions, deployment and post-deployment support. Deployment relates "to the delivery of products and their installation into a customer's environment" (Tuli et al., 2007, p. 7). The installation often reveals additional customer needs which require a product modification. In addition, the authors emphasise that deployment processes involve dealing with 'people issues' in the customer firm. This relates to the understanding of the customer actors' capabilities and a respective provision of information and training to enable the customer to increase the value-in-use they it derives from of the solution. Regarding the post-deployment process, Tuli et al. (2007) highlight that "it is more than providing spare parts, operating information, and routine maintenance" (p. 7). Post-deployment, in addition, contains the deployment of new products as a reaction to evolving customer needs.

Brady et al. (2005) also suggest two phases in relation to the business solution deployment, the systems integration phase which contains project execution activities, and the operational service phase, which contains post-project activities. During the former, the supplier creates a project organisation and implements the solution. Before deploying the solution in the customer's environment, the supplier should test it. In the latter phase, the operational service phase, providers are responsible for supporting and improving the business solution throughout its life span.

The last phase 'deliver solution' of the solution business model framework suggested by Storbacka (2011) also relates to the business solution deployment. The purpose of this phase is to ensure value creation for the customer and value capture for the supplier. Concerning commercialisation, a critical issue is "to verify and report to both the customer and provider that the planned value has been created, and to document successful deliveries" (Storbacka, 2011, p. 706). Regarding industrialisation, delivery is monitored and adapted in line with issues arising in the process. In addition, industrialisation in this phase includes clearly defining the roles of network partners in contract models and templates. The inclusion of the network is also present in Pawar et al.'s (2009) conceptualisation of the deployment, which the authors label the 'deliver value' stage. This stage is about "selecting the network of partners which can deliver the

required capabilities and managing the performance of this network to ensure uninterrupted access to value for customers" (Pawar et al., 2009, p. 478).

5.3 Redeployment of Business Solutions

Eight studies emphasise the importance of the replicability of business solutions (Brax and Jonsson, 2009; Davies, 2004; Davies et al., 2006; Galbraith, 2002; Salonen, 2011; Storbacka, 2011; Tuli et al., 2007). The aim of a successful business solution provider should be to achieve 'economies of repetition' (Brax and Jonsson, 2009; Galbraith, 2002; Salonen, 2011). Storbacka (2011) goes one step further postulating that business solutions should be both replicable and scalable. In contrast to the conceptualisation of the development and deployment of business solutions, no processes or phases are specifically attributed to the redeployment. Only Storbacka's (2011) conceptualisation of the development and deployment phases incorporates measurements to achieve the ability to redeploy business solutions. Especially since an expensive integration and customisation for a single customer is not always profitable for a solution provider, knowledge and experience should be documented so that it can be re-used in later solution offering developments. Thus, the risk of failure and costs of iterative mistakes can be decreased (Davies et al., 2006). A further proposition in the redeployment of business solution is a hierarchical or layered view of the offering. In this respect, Storbacka (2011) suggests to have business solutions with a solution hierarchy consisting of three levels: "(1) the segment or customer specific solution configurations, (2) the basic sales item or module which is the smallest element that can be sold separately, and (3) options that can be added to one or several basic sales items, but cannot be sold separately" (Storbacka, 2011, p. 703). In a similar vein, Brax and Jonsson (2009) propose a layered view of business solutions in which "a basic structure and the customisation aspects are separated, and major service level up-grades form their own layer" (p. 554).

5.4 Actors within the Development, Deployment, and Redeployment of Business Solutions

As the above discussion on the processes and phases related to the development, deployment, and redeployment of business solution has already shown, there may be a variety of actors involved in the creation of business solutions. As specified in sub-

chapter 3.8, actors can pertain to the firm and the individual level. An overview of the actors involved as per the inclusion in the review's studies is given in Figure 5. The most obvious actor within the development, deployment, and redeployment of business solutions is the supplier firm. According to Storbacka (2011, p. 699), "success in solution business requires a firm-wide initiative". A single function within the firm cannot manage the development, deployment and redeployment of business solutions alone (Davies et al., 2006; Galbraith, 2002; Windahl et al., 2004). Concerning the actor constellation within the supplier firm, there are two main streams of literature. They pertain to business solution providers which emerged from a servitisation of manufacturing journey (Vandermerwe and Rada, 1988). One stream assumes that business solutions are the most advanced service offering to the installed base of products, which are the products a firm currently offers (Gebauer et al., 2005; Mathieu, 2001; Oliva and Kallenberg, 2003). The move towards business solutions is considered as a sequential process in which firms incrementally expand their service offerings to their installed base. Scholars advancing this view claim that business solutions are only provided after the product has been handed over to the customer. This has implications on the actor constellation within the supplier firm. Service operations and manufacturing and product placement operations are views as isolated from each other (Gebauer et al., 2005; Mathieu, 2001; Oliva and Kallenberg, 2003). In contrast, the other stream of literature suggests that transforming for solutions requires a radical change from the traditional product-centric manufacturing business model towards one with a strategic customer focus (Davies, 2004; Galbraith, 2002; Storbacka, 2011; Windahl et al., 2004). According to this stream, the actor constellation within the supplier firm is characterised by a threefold, hybrid structure. Using Davies et al.'s (2006) labelling, this structure consists of 'front-end customer facing units', 'back-end product and service units', and 'strategic centre'. While the actors at the front-end interact with customers and are responsible for the commercialisation, the back-end units are concerned with the industrialisation (Storbacka, 2011). The remaining actors have leadership and support functions. The actors within the supplier organisation involved in the development are likely to be different from the ones responsible for the deployment. Therefore, cross-functional cooperation and coordination becomes

especially important to ensure a high level of quality in both phases (Davies et al., 2006; Galbraith, 2002; Storbacka, 2011; Töllner et al., 2011; Tuli et al., 2007).

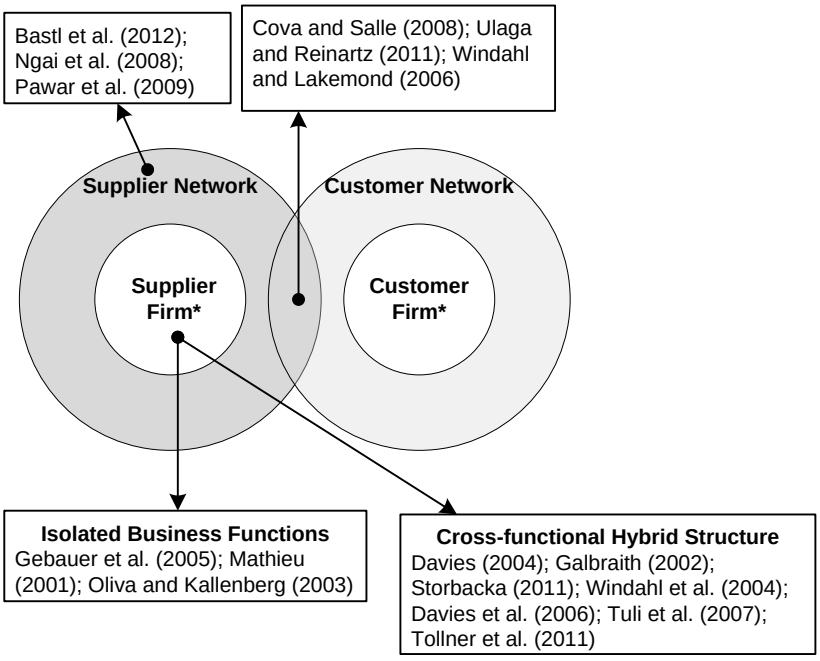

Figure 5: Actors Involved as Per Inclusion in the Studies

Even though the two streams of the literature outlined above differ in their assumptions regarding the actor constellation within the supplier firm, all studies explicitly or implicitly agree that an understanding of the customers' business models and processes is a prerequisite for the development of business solutions. Salonen (2011) goes one step further suggesting that the firm must understand both the direct as well as the end customer's value creating processes. A natural implication from this assumption is that the development and deployment of business solutions requires some form of involvement of the customer (e.g. Grönroos, 2011; Tuli et al., 2007; Windahl et al., 2004). Kindström and Kowalkowski (2009) argue that customer interaction should be present at all stages. Ojasalo (2009) highlights the importance of customers as 'informants' or 'co-designers' in the development of industrial services. Various actors of the customer firm might be engaged in formal and informal conversations on the identification and definition of the customer requirements, needs or problem(s) which the business solution for the individual customer or for a customer portfolio is to

address (Brady et al., 2005; Töllner et al., 2011; Tuli et al., 2007; Windahl et al., 2004). Regarding the individual customer, Brady et al. (2005), for example, state that senior management is involved in the conversations. Macdonald et al. (2011) and Töllner et al. (2011) argue that customer firm actors of the buying centre in the roles of deciders (e.g. project managers), buyers (e.g. purchasing managers) and users (e.g. warehouse mangers) are involved in the development and deployment of business solutions. Concerning the customer portfolio, Storbacka (2011) and Davies et. al (2006) emphasise the involvement of selected lead customers in idea generation and solution development.

A further notion found in the literature is that actors involved in the development and/or deployment of a business solution extend beyond actors of the customer and supplier dyad towards either the supplier network (Bastl et al., 2012; Ngai et al., 2008; Pawar et al., 2009) or the supplier network and the customer network (Cova and Salle, 2008; Ulaga and Reinartz, 2011; Windahl and Lakemond, 2006). In this respect, Cova and Salle (2008) claim that "the focal relationship between the supplier and the customer should be understood as connected to several relationships that either the supplier or the customer has, some of which are with the same third party" (Cova and Salle, 2008, p. 275). Concrete examples of possible network actors are a provider's and/or customer's suppliers, a provider's competitors, research institutes, or the government (Matthyssens and Vandenbempt, 2008; Windahl and Lakemond, 2010). Cova and Salle (2008) propose that the actors within the development and deployment of a business solution appear in two stages. Firstly, the supplier and its supply network as well as the customer and a few customer network actors are involved. Secondly, the supplier network and the customer network follow. Bastl et al. (2012) find that the creation of an effective business solution requires that all actors of the supplier network have intimate insights into the customer's business operations. In a similar vein, Hakanen and Jaakkola (2012) state that it needs "a fit between the perceptions of multiple suppliers and their customers with regard to core content, operations and processes, customer experience and value of the solution" (p. 539).

The actors involved in the development, deployment, and redeployment of business solutions engage in interaction forms which are discussed next.

5.5 Actors' Interaction Forms within the Development, Deployment, and Redeployment of Business Solutions

Interaction is a mutual or reciprocal action where two or more parties have an effect upon one another (Grönroos and Ravald, 2011). The literature shows different points of view regarding both the supplier's intra-firm actors' interaction forms as well as inter-firm interaction forms between actors of the supplier firm and the customer firm and partly also the supplier and/or the customer firm network actors. Table 24 give an overview of the interaction forms and the respective theoretical perspectives attached.

Concerning the supplier's intra-firm interaction forms, the above discussion has shown that some scholars ascribe to the view that organisational functions are separated and largely work in isolation from each other (e.g. Oliva and Kallenberg, 2003), while others claim that business solutions require a hybrid internal structure which allows for extensive cross-functional cooperation (e.g. Davies et al., 2006; Galbraith, 2002).

In terms of inter-firm interaction forms between the actors involved in the development, deployment and redeployment of business solutions, scholars suggests slightly different interaction forms. These interaction forms can be understood best in relation to value creation. Eleven of the 23 empirical articles implicitly (Brady et al., 2005; Brax and Jonsson, 2009; Storbacka, 2011) or explicitly (Cova and Salle, 2008; Hakanen and Jaakkola, 2012; Kindström and Kowalkowski, 2009; Macdonald et al., 2011; Pawar et al., 2009; Salonen, 2011; Töllner et al., 2011; Tuli et al., 2007) ascribe to the view that the inter-firm interaction form is co-creation. The literature's theoretical perspective attached to this interaction form is SDL as presented in the conceptual papers by Vargo and Lusch (2004; 2008) and the practitioner paper by Lusch et al. (2008). In SDL, value creation is regarded as interactional. While the traditional logic, the so-called goods-dominant logic, is based on the assumption that value is embedded in products by the producer, SDL assumes that value is determined by the customer thorough use. SDL holds that all providers are essentially service providers who exchange service for service. Vargo and Lusch (2008) define service as the use of resources for the benefit of another party. Value creation occurs "when a potential resource is turned into a specific benefit" (Lusch et al., 2008, p. 8). Two broad categories of resources can be differentiated: First, operand resources, which are typically physical, and second,

operant resources, which are typically human, organisational, informational and relational (Hunt and Derozier, 2004). In focusing on the integration of operand and operant resources to support the activities and interactions through which a service occurs, SDL posits both suppliers and customers as essentially being resource integrators (Vargo, 2008; Vargo and Lusch, 2006). The role of the customer changes from being seen as an operand resource, i.e. something is done to them by the service firm, to being regarded as an operant resource, i.e. someone who does something actively during value co-creation (Vargo and Lusch, 2004). SDL thus establishes a framework of reciprocal service provision in which value is dynamically co-created in a relational process resulting in value-in-use for the respective beneficiary. In this perspective, the supplier is not a value creator but a co-creator of value (Lusch et al., 2008; Vargo and Lusch, 2008) and the customer, or other actors of the value constellation, are always co-creators of value (Vargo, 2008). Even though Ngai et al. (2008) do not refer to SDL, their portrayal of the interaction within the supplier network of CoPS can be attributed to this perspective. The authors find that inter-firm collaboration is intensive in the development and deployment of CoPS and influences knowledge management and project performance positively. Hakanen and Jaakkola (2012) and Pawar et al. al. (2009) highlight that firms must establish a fit between the goals, preferences, and resources of supplier firms in order to co-create effective business solutions.

Grönroos and Helle (2010) have a slightly different view on the interaction forms between the inter-firm actors involved in the development, deployment, and redeployment of business solutions. The authors' perspective can be attributed to the perspective of service logic as portrayed by two further conceptual papers (Grönroos, 2008; Grönroos and Ravald, 2011). In contrast to SDL's assumption of the interaction form being always co-creation, service logic argues that fundamentally the customer is the creator of value while the supplier takes the role of a value facilitator. When using resources provided by a firm together with other resources and applying skills held by them, customers create value for themselves in their everyday activities and processes (e.g. manufacturing, accounting and advertising campaigns) (Grönroos, 2008). Only during interactions with the customer, on top of being a value facilitator, the supplier gets opportunities to co-create value with the customer in a process of joint value

creation (Grönroos, 2008). In this context, the supplier can for example interfere with the customer's usage process, learn from the customer or teach them new skills (Grönroos, 2008). In relation to the development and deployment of business solutions, Grönroos and Helle (2010) suggest an activity labelled 'practise mating'. They argue that "by matching supplier and customer practices and thereby aligning corresponding processes, resources and competencies, suppliers can support their customers' business more effectively and thus enable the customers and also themselves to create incremental value which can be shared between the business partners (Grönroos and Helle, 2010, p. 564).

An alternative perspective on inter-firm interaction within the development, deployment, and redeployment of business solutions is provided by Windahl and Lakemond (2006; 2010). Referring to Vargo and Lusch's (2004) conceptualisation of SDL and goods-dominant logic, the authors position the interaction form pertinent to business solutions in between these two logics. In doing so, they acknowledge that the supplier becomes part of the customer's processes. Yet, this does not inevitably mean that the customer plays a co-creating role as proposed by SDL. Rather, interaction between the two firms shifts from transactional exchanges, as proposed in goods-dominant logic, to increased dependency. The customer's role shifts from receiving a good to outsourcing parts of its operations and the supplier creates value by taking over these tasks.

Table 24: Interaction Forms and Respective Theoretical Perspectives

	Empirical Evidence	**Conceptual Explanation**
Value Co-Creation *(SDL)*	Brady et al. (2005) Brax and Jonsson (2009) Cova and Salle (2008) Hakanen and Jaakkola (2012) Kindström and Kowalkowski (2010) Macdonald et al. (2011) Pawar et al. (2009) Salonen (2011) Storbacka (2011) Töllner et al. (2011) Tuli et al. (2007)	Lusch et al. (2008) Vargo and Lusch (2004) Vargo and Lusch (2008)
Customer-centred value creation *(service logic)*	-	Grönroos (2008) Grönroos and Helle (2010) Grönroos and Ravald (2011)
Supplier-centred value creation *(combination of SDL and goods-dominant logic)*	Windahl and Lakemond (2006; 2010)	-

5.6 Summary

After having discussed the conceptualisation of the development, deployment, and redeployment of business solutions including the actors and interaction forms involved, I provide a summative account of it.

It is noteworthy that the above synthesis is based on slightly different understandings of the business solution concept. Except for four studies, all publications provide a supplier- and product-centred picture of the concept in their definitions (cf. Table 20). Yet, when considering the actors involved in the development, deployment, and redeployment of business solutions, all studies point to the involvement of the customer to a greater or lesser degree. There are six studies contributing to our knowledge of the phases and processes related to the development, deployment, and redeployment of business solutions (cf. Table 25). The redeployment is not accounted for as a separate phase or process. Yet, Storbacka's (2011) framework, which is – apart from Kindström and Kowalkowski's (2009) – the only one developed for multiple solutions, addresses the replicability within the development processes. The studies also vary considerably in their degree of detail in which they report on the contents of these phases and processes. In this respect, Storbacka's (2011) is by far the most detailed one, even though his study provides breadth, rather than depth, in terms of the capabilities and management practices required for a solution business model.

Table 25: Conceptualisation of the Phases and Processes of Business Solution Offerings

Study	Development of Business Solutions			Deployment of Business Solutions		Term Used
Kindström and Kowalkowski (2009)	Market sensing	Development	Sales	Delivery		Stage
Tuli et al. (2007)		Requirements definition	Customisation and integration	Deployment	Post-deployment support	Process
Töllner et al. (2011)	Signalling	Requirements definition	Customisation and integration	Deployment	Post-deployment support	Process
Brady et al. (2005)	Strategic engagement phase	Value proposition phase		Systems integration phase	Operational services phase	Phase
Storbacka (2011)	Develop solutions	Create demand	Sell solution	Deliver solution		Phase
Pawar et al. (2009)		Define value	Design value	Deliver value		Phase

The consideration of the processes and phases of the development and deployment has shown that there is an issue regarding the terminology used. According to the definitions for the terms ‘phase/stage’ and ‘process’ as provided in sub-chapter 5.1, these concepts refer to different hierarchical levels. A phase/stage forms a part of a process. Yet, comparing the different authors’ use of the terms and their understanding of the respective process or phase reveals that the terms are not always used consistently and/or in line with the definitions. For example, Brady et al.’s (2005) ‘strategic engagement phase’ and Töllner et al.’s (2011) ‘signalling’ process have some similarities in terms of their contents, but the authors use the different conceptual labels of ‘phase’ and ‘process’.

In relation to the actors, actor constellations, and interaction forms related to the development, deployment, and redeployment of business solutions, the literature differs in its viewpoints. In terms of intra-firm actors some scholars suggest that organisational functions largely work separated from each other (e.g. Oliva and Kallenberg, 2003), while others advance the view that that they collaborate extensively (e.g. Galbraith, 2002). Concerning the inter-firm actors, all studies implicitly or explicitly acknowledge that the creation of business solution requires some form of customer involvement. Moreover, some scholars propose that the supplier network and/or the customer

network are involved as well (e.g. Cova and Salle, 2008). In terms of interaction forms of inter-firm actors the majority of the studies ascribes to SDL's perspective of value co-creation (e.g. Tuli et al., 2007). Grönroos and Helle (2010) suggest that it is mainly the customer who creates value as proposed by service logic. In contrast, Windahl and Lakemond (2010) suggest that value creation is supplier-centred. They propose that there is an increased dependence between the supplier and the customer where the supplier becomes part of the customer's operations.

Figure 6 provides an integrated framework of the findings on the development, deployment, and redeployment of business solutions, showing the discussed process/phase perspective and the value creating actor perspective. The process/phase perspective displays the processes/phases as the main supplier activities which are supported by customer input and products, services, and knowledge components. The result is the creation of solution value. The value creating actor perspective shows the actors involved and their interaction forms in relation to value creation.

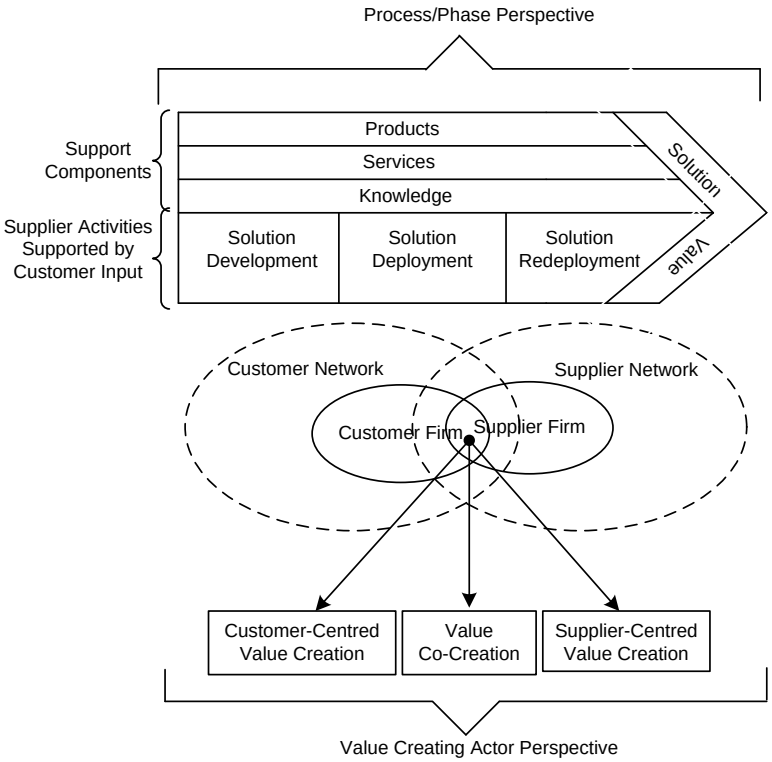

Figure 6: Framework of the Development, Deployment, and Redeployment of Business Solutions

The illustration of the process/phase perspective might appear similar to Porter's (1985) model of the value chain. There is, however, only one commonality, which is the aspect that value creating activities lead to value creation. In contrast to Porter's (1985) value chain, the above framework does not assume that value (added) is created in sequential steps by the firm and subsequently 'handed over' to the customer who then consumes it.

After having presented the findings related to the conceptualisation of the development, deployment, and redeployment of business solution, I discuss them in the next chapter.

6 Discussion

The investigation of how the literature conceptualises the development, deployment, and redeployment of business solutions has shown that there is an initial basic understanding of the issue. This has been developed in mostly exploratory studies (17 of 23 empirical studies). Therefore, it is hardly surprising that the conceptualisation remains inconclusive. The research area is still in its infancy and many opportunities for further research exist. In the following, I discuss the findings along five key insights, pointing out its limitations, and provide suggestions for future research. Subsequently, I outline academic and practical implications.

Key insight 1: The existing conceptualisation of the development, deployment, and redeployment of business solutions fails to identify underlying theories and causal relationships that help us to explain the observations made regarding the on-going development of business solutions. Apart from the use of a SDL lens, which is rather a perspective than a theory, no empirical study grounds the conceptualisation of the development, deployment, and redeployment in a deeper theoretical foundation. Likewise, no empirical study goes beyond the context from which it arose to investigate the more fundamental processes such as organisational learning or the underlying mechanisms through which solution value is created and captured. Hence, the work is descriptive, context-specific and anecdotal, failing to explain the observations from a deeper theoretical perspective.

Key insight 2: The studies relating to the processes and phases of the development and deployment fail to take into account the roles of the supplier and the customer network. Six empirical studies propose that the supplier network is involved in the on-going development of business solutions and three empirical studies suggest that, in addition to the supplier network, the customer network is involved. Furthermore, four conceptual papers support the inclusion of the network(s) in value (co-)creation. Despite this evidence, only one study (Pawar et al., 2009) takes account of the supplier network in the conceptualisation of the phases of the development, deployment, and redeployment of business solutions. No study includes the customer network. Thus, the process/phase perspective and the value creating actor perspective as shown in Figure 6 are not integrated.

Key insight 3: Evidence and understanding concerning the redeployment of business solutions is very limited, even though eight studies emphasise its importance. Only one study (Storbacka, 2011) incorporates the necessity of the replicability of business solutions, while the remainder focus on the development and deployment of a single solution. The redeployment clearly needs a deeper understanding since for many solution providers it is mainly the redeployment capability which contributes to profitability.

Key insight 4: The conceptualisation of the development of business solutions is fragmented and fails to elaborate in detail on two of its propositions made. Firstly, as the review of the literature has shown, customisation is an important concept in the development of business solutions. Yet, there is little knowledge regarding what degree of customisation is appropriate. Secondly, integration is a major component of the development of business solutions. There is, however, only very little information available in respect to how integration is actually achieved.

Key insight 5: Empirical studies fail to gather the perspectives of all actors involved. Even though all studies acknowledge some form of customer involvement in the on-going development of business solutions and six studies suggest the involvement of the supplier and/or the customer network, only seven of 23 empirical studies include actors of the customer firm in their empirical investigation. Only one empirical study includes actors of the supplier network (Bastl et al., 2012) and one includes actors of both the supplier and the customer network (Hakanen and Jaakkola, 2012). Considering that half of studies acknowledge that business solutions are developed in co-creation processes, the perspectives of other actors involved should be investigated as well.

In summary, evidence in relation to the conceptualisation of the development, deployment, and redeployment of business solutions remains at a superficial, tentative and inconclusive level. In the next section, I outline opportunities for further research which address the limitations identified in the five key insights.

6.1 Directions for Future Research

The directions for future research are proposed according to the five key insights suggested in the previous section.

Future research direction 1: Since the existing literature fails to identify underlying theories and causal relationships that help us to explain the on-going development of business solutions, future research could investigate which theories support us in explaining the development, deployment, and redeployment of business solutions. It could also seek to identify the causal structures and processes that explain how the value creation processes among the actors can influence value creation and value capture within the development, deployment and redeployment of business solutions. The mechanisms that explain intra-organisational and inter-organisational learning in the context of business solutions are a further research opportunity.

Future research direction 2: Since the studies relating to the processes and phases of the development and deployment fail to include the supplier and the customer network, future research should investigate the roles of actors of both networks in the stages of the on-going development of business solutions. It could investigate the co-operation processes and how the focal supplier firm can manage them.

Future research direction 3: Since the understanding of the redeployment of business solutions is very limited, future studies could investigate what supplier (network) capabilities support the replicability of business solutions. Moreover, it could explore what supplier or relational processes support the redeployment of business solutions and what role the customer, the supplier network and/or customer network actors play in the redeployment of business solutions.

Future research direction 4: Since the conceptualisation of the development fails to explain in detail the customisation and integration of products and/or services within the development of the business solution, future research could do so. Lampel and Mintzberg (1996) discuss a continuum of customisation spanning from 'customised standardisation', i.e. products are made to order from standardised components, to 'pure customisation', i.e. the products are fully personalised. Future research could investigate which degree of customisation lends itself to business solution offerings. Another opportunity for further research is to investigate how product and/or services are integrated within the development of business solutions. In this respect, Brax and Jonsson (2009) point out that the concept of integration might be linked to systems thinking.

Future research direction 5: Since empirical studies on the conceptualisation of the development, deployment, and redeployment of business solutions fail to include the perspectives of all actors involved, a possible research direction is to investigate how the actors of the customer firm, the supplier and the customer network perceive and experience the development, deployment, and redeployment of business solutions. Töllner et al. (2011) and Macdonald et al. (2011), for example, have shown that there are indications that different members of a customer's buying centre find some processes more crucial than others. In relation to the interaction forms of these actors, future research might investigate how the inter-firm value creation processes in solution development, deployment, and redeployment work.

Finally, research on the development, deployment, and redeployment to date has focused on large international companies in the manufacturing and capital goods industry. Future studies could start to consolidate these findings or investigate smaller business solution providers and other industries and compare the findings with the extant literature. In addition, the terminology applied to the uses of the labels 'process' and 'phase' concerning the development and deployment of business solutions needs clarification and consolidation. Future research could strive to develop an appropriate, unambiguous terminology to avoid confusion in subsequent studies.

6.2 Implications for my PhD

The identification of the literature's limitations and the respective areas for future research have implications for my future PhD research. Combining components of future research direction one, two and five as discussed above, in my doctoral studies I plan to answer the question:

How can we explain the value (co)-creating and value capturing processes within and between the actors involved in the development, deployment, and redeployment of business solutions?

To answer this question; I aim to achieve the following objectives:

- to identify the dimensions that help us to describe the changes of business solutions along the on-going development of business solutions

- to explain how the value (co-)creation processes between the actors change over the on-going development of business solutions
- to explain how the value created and the value captured change over the on-going development of the business solution

Considering the actors involved, I will take into account the supplier and its network as well as the customer and its network and collect primary data from these actors. Thereby, I combine the process/phase perspective with the value creating actor perspective as shown in Figure 6.

6.3 Academic Contribution

This review is the first that addresses the subject of the development, deployment, and redeployment of business solutions. It provides academics with a succinct overview of the research that has been done so far in this area. Since the field of business solutions is emerging it offers lots of fruitful opportunities for further research. This review provides suggestions derived from the existing knowledge base and its related gaps.

6.4 Practical Contribution

This review's value for practitioners is twofold. Firstly, this review proposed to practitioners that it is valuable to think of a business solution as a process. As Tuli et al. (2007) found, the view among suppliers is that business solutions comprise of customisation and integration only. However, this review strengthens the claim that business solutions are comprised of relational processes. Hence, suppliers may be able to contribute to a higher value creation (and capture more value respectively), if they extend their focus to all processes. By improving the communication of the business solution value per process, business solution suppliers might increase their customers' willingness to pay. This in turn might increase the suppliers' profitability which is crucial since many business solution providers struggle to make their solutions work (Stanley and Wojcik, 2005). In addition, the process-centred perspective highlights the need for a high quality of all processes since mistakes in one phase are likely to negatively affect the next phase. Further, it may help suppliers in approaching the business of solution provision in a more structured way by developing process- or phase-specific strategies and operations. Consequently, suppliers can also evaluate and

improve their performance in each of these processes. Taking a step-wise approach reduces some of the complexity involved.

Secondly, this review draws practitioners' attention to the actors involved in the processes of business solutions and their interaction forms. With regards to internal supplier actors, it highlights the need for cross-functional cooperation. Concerning external actors, the findings suggest that business solution value is created in interaction between the supplier and the customer and possibly also their networks. This emphasises the importance for suppliers to establish mechanisms and operations that facilitate and support cooperation and mutual value creation. In addition, the necessity to define the roles of the actors and the degree of interaction and collaboration between them is accentuated.

After the discussion of the findings and its implications, I conclude this review in the next chapter.

7 Conclusion

This study investigated how the extant literature conceptualises the development, deployment, and redeployment of business solutions. It discussed the existing literature within the framework of four aspects. Firstly, the review proposed the processes and phases of the development and deployment of business solutions. Secondly, it outlined the components of the redeployment of business solutions. Thirdly, it provided information on the actors involved in the development, deployment, and redeployment of business solutions, and, fourthly, it discussed the interaction forms of these actors. Based on this investigation, the study proposed avenues for further research and practical implications.

The limitations of this study are presented in the next section. After that, I end this conclusion by reflecting on my personal learning.

7.1 Limitations of the Review

This review has four major limitations. Firstly, even though I conducted an extensive search of the literature following a rigorous process, I do not want to claim that all relevant existing information on the development, deployment, and redeployment of business solutions is represented. For example, even though I consider the grounds for the exclusion of theses and conference papers as reasonable and valid, it might be that I have missed an important piece of research by excluding them. Secondly, the findings draw on a very small number of articles which, in addition, partly only provide a minor contribution to the topic investigated. Hence, the claims made are based on very limited evidence. Thirdly, in the presentation of the findings, I tried to present the information as objectively and unbiased as possible. Yet, some personal bias was still not avoidable which is above all visible in the organisation of the findings. It may be that another researcher would have structured it differently and put different emphasis on different aspects. The fourth limitation stems from the articles investigated. Not all of them conceptualise the concept of a business solution according my definition in the introduction. Even though I have specified the studies' understandings of it, the divergence in the conceptualisation of business solutions still remains a limitation when the conceptualisation of its development, deployment, and redeployment is investigated.

7.2 Personal Learning

In the following I reflect on my learning experience with respect to undertaking this thesis project. Conducting a literature review in a systematic way provided me with an initial, yet extensive experience of how the systematic methodology differs from a traditional narrative review. I appreciate the value of being able to claim that a systematic review is more reliable in terms of the comprehensiveness of literature investigated. However, I do not buy into the argument that a systematic review does not allow the researcher to 'tell his or her own story', which some proponents of this methodology claim. I believe that findings can still be presented in one way or another and thus be shaped according to the authors' preferences, needs, or intentions. In this respect, I think that this might be only a minor issue when multiple researchers are involved in a systematic review.

I experienced the process of this systematic review as quite tedious. Above all the examination of abstracts and full texts and the filling of the data extraction forms were very time-consuming. I also did not find it easy to present a comprehensive picture of the limited information available. In sum, I learned that conducting a systematic review requires a lot of discipline and stamina. These are characteristics in which I have space for improvement. In this respect, I am confident that a PhD will do its contribution.

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APPENDICES

Appendix A Criteria for Quantitative Papers

Empirical – quantitative papers	1	2	3	4	5
Theoretical framework and development of hypotheses (if appropriate)					
Are the study's propositions and hypotheses clearly articulated?					
Are the basic arguments of the paper important and interesting?					
Are important premises and assumptions identified?					
Is there a graphic depiction of the relationship between key variables in the paper?					
Are the key terms identified?					
Description & evaluation of methods (if appropriate)					
Is the methodology of the paper clearly identified?					
Are data collection methods described adequately?					
Are the sampling strategy and sample explained?					
Is the operationalisation of the variables and constructs plausible (content validity)?					
Are dependent variables identified and described?					
Are independent variables identified and described?					
Are control variables identified and described?					
Do measures theoretically relate independent and dependent variables (construct validity)?					
Are questionnaire or other measurement items identified and described?					
Was the discussion of the interview or questionnaire construction and response rates clear and comprehensive?					
Have steps been taken to avoid data collection errors?					
Is there evidence of reliability or internal consistency in the study?					
Results					
Are the findings adequately and accurately described?					
Are results clearly related back to original propositions, hypotheses, research questions, and data analysis?					
Do tables provide sufficient and accurate data to allow the reader to reach independent conclusions?					
Are figures and appendices used effectively?					
Is implied causality justified?					
Has the author adequately considered alternative explanations for the results found?					

1=Not at all. 2=Only to a limited extent. 3=At an acceptable level. 4=To a significant level. 5=Completely

Source: Huff (1999, p.158)

Appendix B – List of Studies Included

1	Bastl, Johnson, Lightfoot, and Evans (2012)
2	Brady, Davies, and Gann (2005)
3	Brady, Davies, and Hobday (2006)
4	Brax and Jonsson (2009)
5	Cova and Salle (2008)
6	Davies (2004)
7	Galbraith (2002)
8	Gebauer, Fleisch, and Friedli (2005)
9	Grönroos (2008)
10	Grönroos and Helle (2010)
11	Grönroos and Ravald (2011)
12	Hakanen and Jakkola (2012)
13	Kindström and Kowalkowski (2009)
14	Lusch, Vargo, and Wessels (2008)
15	Macdonald, Wilson, Martinez, and Toosi (2011)
16	Mathieu (2001)
17	Matthyssens and Vandenbempt (2008)
18	Ngai, Chin, and Liang (2008)
19	Ojasalo (2009)
20	Oliva and Kallenberg (2003)
21	Pawar, Beltagui, and Riedel (2009)
22	Salonen (2011)
23	Storbacka (2011)
24	Töllner, Blut, and Holzmüller (2011)
25	Tuli, Kohli, and Bharadwaj (2007)
26	Ulaga and Reinartz (2011)
27	Vargo and Lusch (2004)
28	Vargo and Lusch (2008)
29	Windahl and Lakemond (2006)
30	Windahl and Lakemond (2010)
31	Windahl, Andersson, Berggren, and Nehler (2004)

Appendix C – Quality Assessment of Selected Papers

Critera for Qualitative Papers / Paper Numbers	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23
Is the purpose of the research adequately established?	2	3	4	2	2	4	3	4	3	3	4	5	5	5	4	3	3	4	5	3	5	5	3
Are the duration and intensity of observation clear?	4	5	5	3	2	5	4	3	3	2	3	5	4	5	4	4	4	3	4	4	4	5	2
Are the nature of the site, and key players, adequately discussed?	3	5	5	4	2	4	5	4	2	2	3	5	4	5	5	3	4	4	5	4	5	4	2
Are methods of collecting and analysing of data adequately described?	2	5	4	3	2	4	5	4	3	3	4	5	4	4	4	3	3	2	4	4	4	4	2
Does the writer convince the reader that he or she was able to gather information about key events from appropriate sources?	3	4	3	3	2	4	4	3	3	3	4	5	3	4	4	3	2	3	4	3	3	4	3
Is there evidence that informants trusted the researcher and were likely to honestly share information with the researcher?	2	2	2	2	2	3	3	3	3	3	2	4	2	3	2	2	2	2	2	2	3	3	2
Has the author adequately considered alternative interpretations of the data presented?	2	3	2	2	3	2	2	3	2	2	3	2	3	3	2	2	2	4	2	2	4	3	2
Is there evidence of systematically considering evidence that contradicts the author's interpretations?	2	4	3	2	3	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	3	4	2
Total score	20	31	28	21	18	28	28	26	21	20	25	33	27	31	27	22	22	24	28	24	31	32	18

1=Not at all. 2=Only to a limited extent. 3=At an acceptable level. 4=To a significant level. 5=Completely

Source: Huff (1990, p. 158)

Paper No.	Qualitative Studies
1	Brady et al. (2005)
2	Brax and Jonsson (2009)
3	Cova and Salle (2008)
4	Davies (2004)
5	Gebauer et al. (2005)
6	Kindström and Kowalkowski (2009)
7	Mathieu (2001)
8	Matthyssens and Vandenbempt (2008)
9	Oliva and Kallenberg (2003)
10	Pawar et al. (2009)
11	Salonen (2011)
12	Storbacka (2011)
13	Töllner et al. (2011)
14	Tuli et al. (2007)
15	Windahl and Lakemond (2006)
16	Windahl and Lakemond (2010)
17	Windahl et al. (2004)
18	Ngai et al. (2008)
19	Hakanen and Jakkola (2012)
20	Bastl et al. (2012)
21	Macdonald et al. (2011)
22	Ulaga and Reinartz (2011)
23	Ojasalo (2009)

Critera for Conceptual Papers / Paper Numbers	1	2	3	4	5	6
Is the purpose of the research adequately established?	5	3	3	4	4	4
Is the need for (or purpose of) theory development well established?	4	4	4	3	5	4
Is previous theory adequately summarised?	4	3	3	4	5	4
Is the author's contribution to theory significant?	4	4	3	4	5	5
Is it well organised and clear?	4	5	4	4	5	4
Is it adequately linked back to the literature	4	5	3	3	5	5
Total score	25	24	20	22	29	26

1=Not at all. 2=Only to a limited extent. 3=At an acceptable level. 4=To a significant level. 5=Completely

Source: Huff (1990, p. 158)

Paper No.	Conceptual Studies
1	Grönroos and Helle (2010)
2	Galbraith (2002)
3	Grönroos (2008)
4	Grönroos and Ravald (2011)
5	Vargo and Lusch (2004)
6	Vargo and Lusch (2008)

Critera for Practitioner Papers / Paper Numbers	1	2
Is the purpose of the research adequately established?	4	3
Is the author's contribution to practise significant?	4	3
Is it well organised and clear?	5	4
Is it based on credible empirical and/or anecdotal evidence OR does it supported by theory?	3	4
Total score	16	14

1=Not at all. 2=Only to a limited extent. 3=At an acceptable level. 4=To a significant level. 5=Completely

Paper No.	Practitioner Studies
1	Davies (2006)
2	Lusch et al. (2008)

Appendix D – Individual Data Extraction Sheets

Citation
Title: Buyer-supplier relationships in a servitised environment: An examination with Cannon and Perreault's framework
Author(s): Bastl, M., Johnson, M., Lightfoot, H. and Evans, S.
Journal: International Journal of Operations & Production Management
Year: 2012
Key words: Buyer-supplier relationships, Servitisation, Supply chain management, Integrated solutions, Buyer-seller relationships
Study Background
Type of research (conceptual, empirical – qualitative, empirical – quantitative): empirical – qualitative
Epistemological approach (positivist, relativist, social constructionist): relativist
Theoretical foundation:
Methodology
Sample selection, size and characteristics: 1 provider and 2 suppliers, UK manufacturing firms
Data collection and analysis method(s): multiple case studies including 16 semi-structured, in-depth interviews, 2-3 interviewers collected data, purposive sampling strategy (Patton, 1980), template analysis approach (King, 1998), cross-sectional, exploratory, drawing on Yin (2003), Meredith (1998)
Evidential Contribution
Research question/purpose: "The purpose of this study is to examine a buyer's adoption of servitization and the associated implications for the relationships with its suppliers." (p. 650)
Key findings: "There are overarching implications of servitization adoption for buyer-supplier relationships. The implications are notable in all five relationship connectors. Parties expected more open exchange of information, operational linkages were strengthened and changes in the structural arrangements of relationships were witnessed. Legal contracts are complemented by relational norms. The authors also observed a departure away from a win-lose mentality and increased levels of supplier adaptation to support the buyer's provision of integrated solutions." (p. 650)
Limitations and scope for further research: context specific
Synthesis/Key contribution(s) to review question
Processes/Phases of Development and Deployment:
Redeployment:
Actors: supplier and supplier networks
Interaction Form(s):
Comments/observations/notes:

Citation
Title: Creating value by delivering integrated solutions
Author(s): Brady, T., Davies, A. Gann, D.M.
Journal : International Journal of Project Management
Year: 2005
Key words: capital goods, integrated solutions value, life-cycle, innovation
Study Background
Type of research (conceptual, empirical – qualitative, empirical – quantitative, practitioner): empirical – qualitative
Epistemological approach (positivist, relativist, social constructionist): relativist
Theoretical foundation:
Methodology
Sample selection, size and characteristics: six case studies of international (UK, Sweden, France) capital goods companies,
Data collection and analysis method(s): multiple case studies including 92 interviews with senior managers, at least 2 interviewers, longitudinal, descriptive, drawing on Eisenhardt (1989)

Evidential Contribution
Research question/purpose: “to examine how suppliers of complex capital goods are moving in the provision of integrated solutions” (p.360)
Key findings: “Integrated solutions providers need to develop or acquire new capabilities as they shift from being product- or service-centric to customer centric. Integrated solutions projects extend the traditional life-cycle to include pre-bid and post implementation activities requiring innovative approaches to creating value for suppliers and their customers.” (p.360)
Limitations and scope for further research: confirm and refine suggested integrated solutions life cycle
Synthesis/Key contribution(s) to review question
Processes/Phases of Development and Deployment: framework for integrated solutions life cycle, consisting of strategic engagement phase, value proposition phase, systems integration phase, and operational services phase
Redeployment:
Actors: supplier-customer
Interaction Form(s): value co-creation
Comments/observations/notes: Integrated solutions are considered as long-term projects

Citation
Title: Developing integrated solution offerings for remote diagnostics
Author(s): Brax, S.A. &Jonsson, K.
Journal: International Journal of Operations & Production Management
Year: 2009
Key words: Industrial services, maintenance programmes, manufacturing industries, after sales service
Study Background
Type of research (conceptual, empirical – qualitative, empirical – quantitative, practitioner): empirical – qualitative
Epistemological approach (positivist, relativist, social constructionist): relativist
Theoretical foundation:
Methodology
Sample selection, size and characteristics: remote-diagnostics providers (2) (global companies with headquarters in Europe) and customers (7),
Data collection and analysis method(s): comparative, theory-building, multiple case studies including 57 interviews, company documents, 2 interviewers, grounded theory coding (Glaser and Strauss, 1999), cross-sectional, exploratory, drawing on Klein and Myers (1999), Walsham (1993), Yin (1989), Eisenhardt (1989)
Evidential Contribution
Research question/purpose: to analyse two manufacturing firms entering condition based maintenance business to investigate the complex nature of establishing integrated solutions.
Key findings: “In integrated solutions, value is created incrementally through the customer-provider co-production process. Building integrated solutions business requires managing the interdependence of the solution components – both within the provider company and the offering, and between the provider and the client – to enable this collaborative process” (p.539)
Limitations and scope for further research: The concept of integration needs to be investigated, perhaps linked to systems thinking. “The wide emphasis on customer focus should lead to the increasing involvement of customers in integrated solutions research. Success and failure examples are extreme contradictions and should be used with caution as most cases fall in between, typically ending with a successful solution after resolution of a complex network of problems” (p. 555-556), “voice of the customer” (p.555) is required in solution research
Synthesis/Key contribution(s) to review question
Processes/Phases of Development & Deployment: offering solutions requires understanding of the customer’s business processes and evaluating offerings and competences from the customer’s perspective. Suggestion “of a layered view of solution offerings in which a basic structure and the customization aspects are separated, and major service level up-grades form their own layer. Moreover, we suggest conceptualizing the offering through the types of the core components, to ensure proper organization and operational support.” (p. 554),

Redeployment: aim: “economies of repetition” (p.542)
Actors: supplier-customer dyads, supplier: case companies approached solutions development from the technical side, “failing to properly address different customer needs and preferences”
Interaction Form (s): in the “context of integrated solutions, in which the main parts of the process happen inside the client’s business system, the idea of improving efficiency by locating most tasks in the back office is simply inadequate. This indicates an urgent need to develop service operations management approaches that support the design and management of co-productive service processes produced as part of the customer’s operations.” (p.553), Interaction should adopt a long-term systems orientation, i.e. “holistic, balanced, iterative, collaborative” (p.555)
Comments/observations/notes:

Citation
Title: Marketing solutions in accordance with the S-D logic: Co-creating value with customer network actors
Author(s): Cova, B. & Salle, R.
Journal: Industrial Marketing Management
Year: 2008
Key words: customer network, customer value proposition; S-D logic, solution, value co-creation
Study Background
Type of research (conceptual, empirical – qualitative, empirical – quantitative, practitioner): empirical – qualitative
Epistemological approach (positivist, relativist, social constructionist): social constructionist
Theoretical foundation: service-dominant logic
Methodology
Sample selection, size and characteristics: 2 case studies (manufacturing & capital goods)
Data collection and analysis method(s): multiple interviews, non-participant observation, longitudinal, exploratory, drawing on (Woodside & Wilson, 2003)
Evidential Contribution
Research question/purpose: How can the conceptual framework of service-dominant logic be applied to marketing solutions?
Key findings: “We have identified the co-creation of value, the supply network and the customer network as being the pillars of such an approach aimed at providing solutions. The co-creation of value with the customer network actors has been particularly identified as being the missing link in current B2B offering strategy approaches in terms of solutions. On this point, the study of two cases has put forward a two stage approach: first, co-creation of value between the supplier (including his supply network) and certain customer network actors; then, co-creation of value between the supplier and his network and the customer and his network.” (p.276), the supplier’s value proposition should address the customer network
Limitations and scope for further research: test the concept of customer network value proposition in different industries.
Synthesis/Key contribution(s) to review question
Key contribution(s) to review question:
Redeployment:
Actors: supplier network – customer network
Interaction Form(s): value co-creation (see key findings)
Comments/observations/notes:

Citation
Title: Moving base into high-value integrated solutions: value stream approach
Author(s): Davies. A.
Journal: Industrial and Corporate Change
Year: 2004
Key words: integrated solutions, systems integration, service capabilities
Study Background
Type of research (conceptual, empirical – qualitative, empirical – quantitative, practitioner): empirical – qualitative

Epistemological approach (positivist, relativist, social constructionist): relativist
Theoretical foundation: Penrose's (1959) study of firm growth and diversification, value stream approach (Galbraith, 1983; Porter, 1990)
Methodology
Sample selection, size and characteristics: 5 international firms of the capital goods industry
Data collection and analysis method(s): multiple interviews, longitudinal, descriptive
Evidential Contribution
Research question/purpose: to develop "a framework to analyse business strategies for integrated solutions in terms of how a firms moves base in the industry value stream" (p.727)
Key findings: Firms offering integrated solutions do not only move downstream but also upstream. Required capabilities are: systems integration, operational services, business consulting & financing
Limitations and scope for further research: test and develop the framework, also in other industries
Synthesis/Key contribution(s) to review question
Processes/Phases of Development & Deployment:
Redeployment:
Actors: supplier (network)-customer, work with competitors
Interaction Form(s):
Comments/observations/notes:

Citation
Title: Co-creating customer-focused solutions within business networks: a service perspective
Author(s): Hakanen, T. &Jaakkola, E.
Journal: Journal of Service Management
Year: 2012
Key words: integrated solution, co-creation, service concept, business network, customers, business development
Study Background
Type of research (conceptual, empirical – qualitative, empirical – quantitative): empirical – qualitative
Epistemological approach (positivist, relativist, social constructionist): relativist
Theoretical foundation: service-dominant logic
Methodology
Sample selection, size and characteristics: "Data were collected from two business networks comprising 13 companies, including suppliers and their customers." (p.539) "The sources for data collection were comprised of 13 firms and 66 informants. In Case A, data were collected from two supplier firms and two customer firms. The data sources for Case A included 23 interviews and 14 workshops or meetings. For Case B, data were collected from six supplier firms and three customer firms. The data sources for Case B included 28 interviews and seven workshops or meetings." (p.599)
Data collection and analysis method(s): 2 case studies of co-created solutions including interviews and non-participant observation, drawing on Yin (2003), Eisenhardt and Graebner (2007), Eisenhardt (1989), theoretical sampling (Silverman, 2006; Eisenhardt and Graebner, 2007), longitudinal, exploratory
Evidential Contribution
Research question/purpose: "to identify the critical factors affecting the effective co-creation of customer-focused solutions within business networks" (p.595)
Key findings: "Effective co-creation of solutions requires a fit between the perceptions of multiple suppliers and their customers with regard to core content, operations and processes, customer experience and value of the solution. Co-creation is affected by, e.g. customer's preferences for participation and value, and the degree of competition, clarity of role division and rapport among the suppliers." (p.539)
Limitations and scope for further research: "future research could address how actors in different types of solution networks could co-operate more effectively when analysing customer needs, and formulating a solution. The second area for future research relates to the role of supplier companies and the division of tasks between them. This is a critical issue as it affects the content of the solution, i.e. how companies discover the best fit between customer needs and the solution offering; as well as the customer experience, i.e. how the suppliers manage the common customer interface. Another question to be asked is: How should the network be organised to ensure the best resource combination for each customer project, avoid conflicts or turn them into fruitful sparring, and respond to varying customer preferences in a flexible manner? A

further important issue is to study the value of an integrated solution: What are the value drivers that motivate suppliers to engage in the co-creation of solutions? How can companies document, concretise, and demonstrate the value potential of a solution? How do solutions delivered by several suppliers contribute to the customer's value creating processes?" (p. 607)
Synthesis/Key contribution(s) to review question
Processes/Phases of Development & Deployment:
Redeployment:
Actors: supplier and customer network,
Interaction Form(s): co-creation : "Co-creating solutions that meet customer needs requires suppliers to have a shared understanding of the customer problem and expectations regarding the process. Especially the degree of competition, the clarity of the role division and the rapport among the supplier firms are critical for solution effectiveness as these factors influence customer experience regarding the solutions process and its outcome. Effective co-creation with the customer requires that suppliers understand of not only the customer needs regarding the core solution content, but also of the customer's preferences regarding their role and control in the co-creation process." (p. 606), "The results especially highlighted the importance of suppliers' commitment to common goals as it affects the coherency of customer experience. The study showed that in order to co-create customer-focused solutions, the supplier firms need to adjust the solutions content and the co-creation process according to the customers' heterogeneous value expectations. Some customers may primarily seek to accrue value from the effective coordination of the network performed by one of the suppliers, while others may primarily expect to explore new options and develop new solutions by integrating various resources within the business network." (p.606) "in order to co-create effective customer-focused solutions, firms need to create a fit between not only the offering and the customer need and value expectations, but also between the goals, preferences, and resources of the supplier firms." (p.606)
Comments/observations/notes:

Citation
Title: Charting a path toward integrated solutions
Author(s): Davies, A., Brady, T. &Hobday, M.
Journal: MIT Sloan Management Review
Year: 2006
Key words: integrated solutions, service capabilities
Study Background
Type of research (conceptual, empirical – qualitative, empirical – quantitative, practitioner): practitioner
Epistemological approach (positivist, relativist, social constructionist): relativist
Theoretical foundation:
Methodology
Sample selection, size and characteristics: five case studies of international capital goods companies, over 100 interviews with CEOs, directors, senior project managers, heads of functional department and project managers
Data collection and analysis method(s): interviews
Evidential Contribution
Research question/purpose: to examine how suppliers of complex capital goods are moving in the provision of integrated solutions
Key findings: integrated solution providers need to develop the following service capabilities: a) systems integration, b) operational services, c) business consultancy, d) vendor financing. Solution providers should develop a three-part organisational structure consisting of back-end (internal or external) capabilities providers, front-end customer facing units and a strategic corporate centre to provide oversight and leadership. To organise repeatable solutions, companies should follow a three-step process: 1) grow the front end, build the back end, refocus.
Limitations and scope for further research: investigate the required capabilities in other industries
Synthesis/Key contribution(s) to review question:
Processes/Phases of Development & Deployment:

Redeployment:
Actors: supplier (network) – customer, internal supplier actors
Interaction Form(s):
Comments/observations/notes:

Citation
Title: Organising to deliver solutions
Author(s): Galbraith, J.R
Journal: Organizational Dynamics
Year: 2002
Key words: solutions, strategy, organisational model, star model
Study Background
Type of research (conceptual, empirical – qualitative, empirical – quantitative, practitioner): conceptual
Epistemological approach (positivist, relativist, social constructionist): relativist
Theoretical foundation:
Methodology
Sample selection, size and characteristics: n/a
Data collection and analysis method(s): anecdotal evidence
Evidential Contribution
Research question/purpose: to describe a solution provider's organisational structure
Key findings: structure, strategy, people, rewards, and processes should be aligned according to a solution's scale and scope, degree of integration, and proportion of revenue
Limitations and scope for further research: empirical testing
Synthesis/Key contribution(s) to review question:
Processes/Phases of Development & Deployment: developing solutions with lead customers to subsequently make them replicable, solution development in flexible teams within the organisation: "Often the services units are organized like a consulting firm, where people routinely move from project to project. The product lines often have business development departments with people who are tasked with winning new business. These people join the capture team and work with the salespeople to win the opportunity." (p.204).
Redeployment: aim: economies of repetition
Actors: supplier-customer
Interaction Form(s):
Comments/observations/notes:

Citation
Title: Overcoming the Service Paradox in Manufacturing Companies
Author(s): Gebauer, H., Fleisch, E. & Friedli, T.
Journal: European Management Journal
Year: 2005
Key words: service business, cognitive phenomena, organisational structuring
Study Background
Type of research (conceptual, empirical – qualitative, empirical – quantitative, practitioner): empirical-qualitative
Epistemological approach (positivist, relativist, social constructionist): relativist
Theoretical foundation:
Methodology
Sample selection, size and characteristics: managers from 30 manufacturing companies
Data collection and analysis method(s): interviews
Evidential Contribution
Research question/purpose: to investigate the phenomenon of the "service paradox"
Key findings: "Extending the service business in manufacturing companies often leads to a ''service paradox.'' Where there is such a paradox, substantial investment in extending the service business leads to increased service offerings and higher costs, but does not generate the expected correspondingly higher returns.", (p. 14) "the ''service paradox'' results from cognitive phenomena limiting managerial motivation

to extend the service business" (p. 24), "extending the service business successfully requires various changes in the organizational structure of manufacturing companies" (p.25)
Limitations and scope for further research: quantitative research on the service paradox
Synthesis/Key contribution(s) to review question:
Processes/Phases of Development & Deployment:
Redeployment:
Actors: internal supplier actors (products & service departments are separated from each other, separate service organisation)
Interaction Form(s):
Comments/observations/notes:

Citation
Title: Service logic revisited: who creates value? And who co-creates?
Author(s): Grönroos, C.
Journal: European Business Review
Year: 2008
Key words: services marketing, marketing theory, value creation
Study Background
Type of research (conceptual, empirical – qualitative, empirical – quantitative, practitioner): conceptual
Epistemological approach (positivist, relativist, social constructionist): relativist
Theoretical foundation: Service logic
Methodology
Sample selection, size and characteristics:
Data collection and analysis method(s):
Evidential Contribution
Research question/purpose: "to analyse the meaning of a service logic as a logic for consumption and provision, respectively, and explore the consequences for value creation and marketing." (p. 298)
Key findings: "Discussing the differences between value-in-exchange and value-in-use, the paper concludes that value-in-exchange in essence concerns resources used as a value foundation which are aimed at facilitating customers' fulfilment of value-in-use. When accepting value-in-use as a foundational value creation concept customers are the value creators. Adopting a service logic makes it possible for firms to get involved with their customers' value-generating processes, and the market offering is expanded to including firm-customer interactions. In this way, the supplier can become a co-creator of value with its customers. Drawing on the analysis, ten concluding service logic propositions are put forward." (p. 298)
Limitations and scope for further research: "The analysis provides a foundation for further development of a service logic for customers and suppliers, respectively, ("service logic" is preferred over the normally used "service-dominant logic") as well for further analysis of the marketing consequences of adopting such a business and marketing logic." (p. 298)
Synthesis/Key contribution(s) to review question
Processes/Phases of Development and Deployment:
Redeployment:
Actors: supplier - customer
Interaction Form(s): value facilitation, value co-creation, and value creation
Comments/observations/notes:

Citation
Title: Adopting a service logic in manufacturing
Author(s): Grönroos, C. & Helle, P.
Journal: Journal of Service Management
Year: 2010
Key words: value added, manufacturing industries, industrial relations
Study Background
Type of research (conceptual, empirical – qualitative, empirical – quantitative, practitioner): largely conceptual

Epistemological approach (positivist, relativist, social constructionist): relativist
Theoretical foundation: Service logic
Methodology
Sample selection, size and characteristics: single industrial buyer-supplier dyad
Data collection and analysis method(s): longitudinal case study, very short description due to emphasis on conceptual contribution
Evidential Contribution
Research question/purpose: "based on a service perspective on business the purpose of this paper is to create a framework for measuring mutually created value in business relationships in the manufacturing sector, which also enables the supplier and customer to share this value between themselves." (p. 566)
Key findings: "By matching supplier and customer practices and thereby aligning corresponding processes, resources and competencies, suppliers can support their customers' business more effectively and thus enable the customers and also themselves to create incremental value which can be shared between the business partners. It is shown that the metrics for calculating JPGs [joint productivity gains] and for sharing these gains in the form of additional value for the business partners, through a price mechanism, can be created and used." (p.564)
Limitations and scope for further research: testing the models (& its dimensions) empirically
Synthesis/Key contribution(s) to review question answer
Processes/Phases of Development & Deployment: integrated view on value creation, models for customer and supplier value creation logics established
Redeployment:
Actors: supplier-customer dyad
Interaction Form(s): (value facilitation (supplier)), value co-creation & value co-production (both), (value creation (customer)), practice matching (aligning supplier and customer processes , which may require action on both sides so that matched practices can generate value for both parties)
Comments/observations/notes: this article was treated as conceptual since only the conceptual part was of interest to the research while the empirical did not address the review question.

Citation
Title: Service as business logic: implications for value creation and marketing
Author(s): Grönroos, C. and Ravald, A.
Journal: Journal of Service Management
Year: 2011
Key words: servicing, marketing theory
Study Background
Type of research (conceptual, empirical – qualitative, empirical – quantitative, practitioner): conceptual
Epistemological approach (positivist, relativist, social constructionist): relativist
Theoretical foundation: service logic
Methodology
Sample selection, size and characteristics:
Data collection and analysis method(s):
Evidential Contribution
Research question/purpose: "to analyse the scope, content and nature of value co-creation in a service logic-based view of value creation, addressing the customer's perspective in a supplier-customer relationship. The nature of the activities and the roles of the supplier and the customer in value creation and co-creation are analysed." (p. 5)
Key findings: "Creating customer value is a process consisting of two conceptually distinct sub processes. These are the supplier's process of providing resources for customer's use and the customer's process of turning service into value. The article results in five service logic theses which provide an understanding of the process of value creation and its implications for marketing. The theses offer a terminology that helps researchers and practitioners to understand the various roles of suppliers and customers in value creation and to analyse opportunities for co-creation of value." (p. 5)
Limitations and scope for further research: "further research into the mechanisms of value facilitation and co-creation of value, and the ways providers and customers conduct their roles and influence each other in these processes, is needed. Furthermore, the various ways suppliers can develop interactions with its

customers, and how such interaction can be used as promise-keeping marketing activities, need additional research. This is especially important to study in manufacturing contexts, where the management of interactions with customers from a marketing perspective has shorter traditions, as compared to the consumer service field." (p. 17)
Synthesis/Key contribution(s) to review question
Processes/Phases of Development and Deployment:
Redeployment:
Actors: supplier-customer
Interaction Form(s): value facilitation, value co-creation and value creation
Comments/observations/notes:

Citation
Title: Development of industrial service offerings: a process framework
Author(s): Kindström, D. & Kowalkowski, C.
Journal: Journal of Service Management
Year: 2009
Key words: Manufacturing industries, services, service levels, innovation
Study Background
Type of research (conceptual, empirical – qualitative, empirical – quantitative, practitioner): empirical – qualitative
Epistemological approach (positivist, relativist, social constructionist): relativist
Theoretical foundation: Service- dominant logic
Methodology
Sample selection, size and characteristics: case studies of ten Swedish manufacturing companies
Data collection and analysis method(s): semi-structured interviews with mostly service managers, eight focus groups, documentary evidence, longitudinal, exploratory, drawing on Yin (2003), Meredith (1998)
Evidential Contribution
Research question/purpose: "to propose a service development process that is adapted to manufacturing companies and to discuss its implications for companies with a traditional focus on product development and product sales" (p.156)
Key findings: A four-stage service offering development framework is presented. The framework is circular and comprises four overlapping, rather than linear discrete, stages, i.e. market sensing, development, sales, and delivery.
Limitations and scope for further research: "Close studies and in-depth knowledge especially into the latter stages of the framework, sales, and delivery, should yield many interesting insights for both practitioners and academics. Related to this is the issue of how to communicate the value of services during these two stages, and how to visualize the service offerings to convey both tangible and intangible elements." (p.169), Innovation research involving business networks.
Synthesis/Key contribution(s) to review question
Process/Phases of Development & Deployment: While the new product and new service development literature focuses on the earlier parts of the product/service life cycle, the latter stage must get equal attention to develop a successful business solution offering. Customer interaction should be present within all four stages. Considering NPD and NSD together is important.
Redeployment:
Actors: supplier-customer
Interaction Form(s): co-creation
Comments/observations/notes:

Citation
Title: Toward a conceptual foundation for service science: Contributions from service-dominant logic
Author(s): Lusch, R. F., Vargo, S. L. and Wessels, G.
Journal: IBM Systems Journal
Year: 2008
Key words: value co-creation, service dominant logic, service science

Study Background
Type of research (conceptual, empirical – qualitative, empirical – quantitative, practitioner): practitioner
Epistemological approach (positivist, relativist, social constructionist): relativist
Theoretical foundation: service- dominant logic
Methodology
Sample selection, size and characteristics:
Data collection and analysis method(s):
Evidential Contribution
Research question/purpose: How does service dominant logic inform service science?
Key findings: "emerging logic of value creation and exchange called service-dominant logic is a more robust framework for service science than the traditional goods-dominant logic." (p. 5)
Limitations and scope for further research: on the commonly related concerns of service dominant logic and service science
Synthesis/Key contribution(s) to review question
Processes/Phases of Development and Deployment:
Redeployment:
Actors: supplier network and customer network
Interaction Form(s): value co-creation
Comments/observations/notes:

Citation
Title: Assessing value-in-use: A conceptual framework and exploratory study
Author(s): Macdonald, E. K., Wilson, H., Martinez, V. and Toossi, A.
Journal : Industrial Marketing Management
Year: 2011
Key words: customer perceived value, service dominant logic, service quality
Study Background
Type of research (conceptual, empirical – qualitative, empirical – quantitative, practitioner): empirical – qualitative
Epistemological approach (positivist, relativist, social constructionist): relativist
Theoretical foundation: Service-dominant logic, means-end theory
Methodology
Sample selection, size and characteristics: single case study
Data collection and analysis method(s): 8 interviews with customer actors, cross-sectional, exploratory, drawing on Stake (1995)
Evidential Contribution
Research question/purpose: to understand how a business customer assesses value-in-use
Key findings: "conceptual framework for assessment of value-in-use implies that customer value may be unearthed by examining the interconnected constructs of: (a) customer assessment of service quality, relationship quality, and the emergent construct of network quality; (b) customer assessment of usage process quality; and (c) value-in-use. The case data were consistent with this framework, while adding a new construct, network quality." (p. 680)
Limitations and scope for further research: analysing the conceptual frame work in other contexts, "[...]future researchers may wish to explicitly track value creation over time." (p. 680)
Synthesis/Key contribution(s) to review question
Processes/Phases of Development and Deployment:
Redeployment:
Actors: customer - supplier
Interaction Form(s):
Comments/observations/notes:

Citation
Title: Product services: from a service supporting the product to a service supporting the client
Author(s): Mathieu, V.

Journal: Journal of Business & Industrial Marketing
Year: 2004
Key words: business-to-business marketing, services marketing, relationship marketing, customer service, Product management
Study Background
Type of research (conceptual, empirical – qualitative, empirical – quantitative, practitioner): empirical – qualitative
Epistemological approach (positivist, relativist, social constructionist): relativist
Theoretical foundation:
Methodology
Sample selection, size and characteristics: 9 supplier managers, 8 customer managers
Data collection and analysis method(s): interviews, content and lexical analysis,
Evidential Contribution
Research question/purpose: "to provide empirical evidence of the distinction between a traditional service offering and a more advanced one through an original classification" (p. 40)
Key findings: "An original classification system is proposed that isolates and compares two types of product services: services that support the supplier's product (e.g. after-sale services) and services that support the client's action in relation to the supplier's product (e.g. training service)." (p.39)
Limitations and scope for further research: additional research on the subject of a more descriptive and causal nature.
Synthesis/Key contribution(s) to review question
Process/Phases of Development & Deployment:
Redeployment:
Actors: supplier- customer
Interaction Form(s): Service operations and manufacturing and product placement operations are viewed as isolated from each other.
Comments/observations/notes:

Citation
Title: Moving from basic offerings to value-added solutions: Strategies, barriers and alignment
Author(s): Matthyssens, P. &Vandenpemt, K.
Journal: Industrial Marketing Management
Year: 2008
Key words: commoditization; market strategy; competitive differentiation; alignment; value-added solutions
Study Background
Type of research (conceptual, empirical – qualitative, empirical – quantitative, practitioner): empirical – qualitative
Epistemological approach (positivist, relativist, social constructionist): social constructionist
Theoretical foundation:
Methodology
Sample selection, size and characteristics: 8 supplier firms
Data collection and analysis method(s): multiple case studies including multiple interviews, longitudinal, exploratory
Evidential Contribution
Research question/purpose: "to explore[…] the concrete efforts of suppliers in the commoditized electro-technical industry to create new non-price-based customer value [… and to develop] a taxonomy of [it]" (p.316)
Key findings: "Our research identifies barriers to the market introduction of these new value concepts. Observations in this industry lead to a framework that (1) proposes alternative step-by-step strategies for making the transition from basic products to service-based solutions, and (2) offers alignment suggestions for overcoming identified barriers. Migration paths to introducing new service-based value concepts are incremental rather than radical, and managers should complement their market approach with (a) value chain actions to create multilevel industry support and (b) an organizational alignment approach." (p.316)
Limitations and scope for further research: test the framework in other settings, comparative study of successful vs. unsuccessful transition paths, "identify and scrutinize how network bonds can be optimally

used to facilitate the introduction of extra service-based value to the business offering" (p.376)
Synthesis/Key contribution(s) to review question:
Processes/Phases of Development & Deployment:
Redeployment:
Actors: supplier - customer
Interaction Form(s):
Comments/observations/notes:

Citation
Title: Designing Industrial Services –What is the Role of Customer?
Author(s): Ojasalo, K.
Journal : The Business Review
Year: 2009
Key words: customer involvement, service development
Study Background
Type of research (conceptual, empirical – qualitative, empirical – quantitative, practitioner): empirical – qualitative
Epistemological approach (positivist, relativist, social constructionist): relativist
Theoretical foundation:
Methodology
Sample selection, size and characteristics: "In the empirical study 37 senior-level executives from 30 machinery and equipment manufacturing companies were interviewed. Twenty of companies were medium sized and ten large global companies." (p. 128)
Data collection and analysis method(s): interviews
Evidential Contribution
Research question/purpose: "This study is intended to shed some additional light on customer roles in designing industrial services from an empirically grounded perspective." (p.125)
Key findings: "two customer roles can be identified in service design: 'Customer as Informant' and 'Customer as Co-designer'. The present study reveals that manufacturing companies in general understand the principle of having customers as idea generators and service designers but they seldom turn this idea into practice." (p.125)
Limitations and scope for further research: "since what customers really values is often hidden, both to the customers and to the manufacturing company, new improved methods of understanding customer value and latent needs are needed." (p. 129)
Synthesis/Key contribution(s) to review question
Processes/Phases of Development and Deployment:
Redeployment:
Actors: supplier-customer
Interaction Form(s):
Comments/observations/notes:

Citation
Title: Managing the transition from products to services
Author(s): Oliva, R. &Kallenberg, R.
Journal: International Journal of Service Industry Management
Year: 2003
Key words: service, management, strategy, after-sales service
Study Background
Type of research (conceptual, empirical – qualitative, empirical – quantitative, practitioner): empirical – qualitative
Epistemological approach (positivist, relativist, social constructionist): relativist
Theoretical foundation:
Methodology
Sample selection, size and characteristics: 11 supplier firms, manufacturing companies

Data collection and analysis method(s): case studies, interviews
Evidential Contribution
Research question/purpose: "to what extent should services be integrated, how should this integration be carried out, and in detailing the challenges inherent in the transition to services" (p. 160)
Key findings: "the transition involves a deliberate developmental process to build capabilities as firms shift the nature of the relationship with the product end-users and the focus of the service offering" (p.160)
Limitations and scope for further research: research on evaluation methods of the installed base service extension
Synthesis/ Key contribution(s) to review question:
Processes/Phases of Development and Deployment:
Redeployment:
Actors: supplier - customer
Interaction Form(s): Service operations and manufacturing and product placement operations are views as isolated from each other
Comments/observations/notes:

Citation
Title: A qualitative study of interorganizational knowledge management in complex products and systems development
Author(s): Ngai, E.W.T, Jin, C. & Liang, T.
Journal / Source: R&D Management
Year: 2008
Key words: knowledge management, CoPS, case studies
Study Background
Type of research (conceptual, empirical – qualitative, empirical – quantitative): empirical – qualitative
Epistemological approach (positivist, relativist, social constructionist): relativist
Theoretical foundation:
Methodology
Sample selection, size and characteristics: 2 Chinese CoPs providers
Data collection and analysis method(s): case study, 17 in-depth and structured interviews, 17 semi-structured interviews, documents, cross-sectional, explanatory
Evidential Contribution
Research question/purpose: "(1) How does inter-organizational collaboration impact on KM within a CoPS innovation network? And (2) How is CoPS innovation performance related to inter-organizational KM?" (p.422)
Key findings: "Network embeddability has a significant influence on inter-organizational KM" (p. 424), "Inter-organizational interaction intensity has a significant influence on inter-organizational KM" (p.427), "Inter-organizational KM has a significant influence on CoPS project performance." (p.430)
Limitations and scope for further research: "We suggest that further empirical research should develop our 12 propositions into hypotheses that can be tested by means of data from a survey of the CoPS firms. The focus of further research should be on the measurement of the constructs in the proposed conceptual model." (p. 437)
Synthesis/Key contribution(s) to review question
Processes/Phases of Development & Deployment:
Redeployment:
Actors: Supplier Network - Customer
Interaction Forms: "the complexities in CoPS innovation lead to frequent communication and joint decision-making during system development, and the stability and flexibility of the network are important for successful collaboration. […] we define inter-organizational interaction intensity as the frequency and degree of joint problem solving, technical meetings, and communication." (p.427), co-creation
Comments/observations/notes:

Citation
Title: Managing the transition from products to services

Author(s): Oliva, R. & Kallenberg, R.
Journal / Source: International Journal of Service Industry Management
Year: 2003
Key words: service, management, strategy, after-sales service
Study Background
Type of research (conceptual, empirical – qualitative, empirical – quantitative): empirical – qualitative
Epistemological approach (positivist, relativist, social constructionist): relativist
Theoretical foundation: -
Methodology
Sample selection, size and characteristics: 11 supplier firms, manufacturing companies
Data collection and analysis method(s): case studies, multiple interviews, grounded theory coding (Strauss and Corbin, 1990), cross-sectional, exploratory, drawing on Eisenhardt (1989); Yin (1984)
Evidential Contribution
Research question/purpose: "to what extent should services be integrated, how should this integration be carried out, and in detailing the challenges inherent in the transition to services" (p. 160)
Key findings: "the transition involves a deliberate developmental process to build capabilities as firms shift the nature of the relationship with the product end-users and the focus of the service offering" (p.160)
Limitations and scope for further research: research on evaluation methods of the installed base service extension
Synthesis/Key contribution(s) to review question
Processes/Phases of Development & Deployment:
Redeployment:
Actors: supplier - customer
Interaction Forms: Service operations and manufacturing and product placement operations are views as isolated from each other
Comments/observations/notes:

Citation
Title: The PSO triangle: designing product, service and organisation to create value
Author(s): Pawar, K.S., Beltagui, A. and Riede, J.C.K.H.
Journal: International Journal of Operations & Production Management
Year: 2009
Key words: Operations management, Virtual organizations, Integrated cost and schedule control, Product management, Organizational design
Study Background
Type of research (conceptual, empirical – qualitative, empirical – quantitative, practitioner): empirical – qualitative
Epistemological approach (positivist, relativist, social constructionist): relativist
Theoretical foundation:
Methodology
Sample selection, size and characteristics: case studies: two companies in aerospace industry
Data collection and analysis method(s): road-mapping (workshops, surveys & interviews), literature review, case research (semi- and unstructured interviews, documentary evidence), cross-sectional, exploratory, drawing on Eisenhardt and Graebner (2007), Yin (2003)
Evidential Contribution
Research question/purpose: (1) "What are the key PSO challenges facing researchers and practitioners?" (p.471)
Key findings: "The result of the research presented in this paper is the PSO framework. It is presented as an iterative, context specific process to guide the development of PSS by incorporating organisational considerations. We identify three stages in the process: (1) Defining value. Identifying customer value, needs and the cost of meeting them to determine the profitability of a PSO. (2) Designing value. Designing a PSS and identifying the organizational requirements in terms of capabilities which are available or required. (3) Delivering value. Selecting the network of partners which can deliver the required capabilities and

managing the performance of this network to ensure uninterrupted access to value for customers." (p.487)
Limitations and scope for further research: test and refine framework
Synthesis/ Key contribution(s) to review question answer
Processes/Phases of Development & Deployment: "the organization should be designed simultaneously with the product-service combination which is its output." (p. 470); PSO framework as outlined above
Redeployment:
Actors: supplier network (virtual enterprise) – customer
Interaction Form(s):
Comments/observations/notes: the authors started their framework development by defining value from the customer perspective "but without losing sight of the value for other stakeholders" (p.471). Then they designed so that the value creation can take place. / authors' conception of organization resembles the one of a virtual organisation

Citation
Title: Service transition strategies of industrial manufacturers
Author(s): Salonen, A.
Journal: Industrial Marketing Management
Year: 2011
Key words: service, service transition, solution, system, solution selling
Study Background
Type of research (conceptual, empirical – qualitative, empirical – quantitative, practitioner): empirical – qualitative
Epistemological approach (positivist, relativist, social constructionist): social constructionist
Theoretical foundation: Service-dominant logic
Methodology
Sample selection, size and characteristics: 2 global industrial manufacturers of capital goods, headquartered in Finland
Data collection and analysis method(s): case studies (33 interviews with managers and division heads), cross-sectional, exploratory, drawing on Yin (2003)
Evidential Contribution
Research question/purpose: "to provide a more holistic understanding of the service transformation process among industrial manufacturers" (p. 683)
Key findings: "manufacturers develop product related services through a dedicated service division designed to exploit the commercial opportunities of servicing an installed base of equipment. At the same time, the strategy of integrated solutions is utilized to enhance the competitiveness of their core product offering under industry conditions which make it difficult to maintain competitive advantage purely through technological leadership." (p.683)
Limitations and scope for further research: replication of study in different contexts
Synthesis/Key contribution(s) to review question
Process/Phases of Development & Deployment:
Redeployment: aim: economies of repetition(p. 688)
Actors: supplier network – customer network, "the firm must intimately understand the customer's own value creating processes, both of the direct as well as end customer, sales efforts must be directed at persons capable of understanding how the resultant solution impacts these processes, and interaction with the customer must occur through an extended sales process. Developing such capabilities at the customer interface is extremely difficult and time consuming. It requires extensive training, as well as selection of persons with the correct behavioural characteristics." (p.688)
Interaction Form(s):
Comments/observations/notes:

Citation
Title: A solution business model: Capabilities and management practices for integrated solutions
Author(s): Storbacka, K.
Journal: Industrial Marketing Management

Year: 2011
Key words: solution business, business model, industrialisation, commercialisation
Study Background
Type of research (conceptual, empirical – qualitative, empirical – quantitative, practitioner): empirical – qualitative
Epistemological approach (positivist, relativist, social constructionist): social constructionist
Theoretical foundation: service-dominant logic
Methodology
Sample selection, size and characteristics: ten multinational firms from different industries: mining and construction, forklift trucks, copper tubes, cargo handling systems, network infrastructure, electronic manufacturing services, digital printing, industrial machinery, shipbuilding, and mobile software solutions.
Data collection and analysis method(s): case studies, in-depth interviews and workshops, abductive approach to research process, grounded theory approach to coding (Strauss and Corbin, 1990), Purposive sampling for interviews (15), workshops with 23-32 reps of the case firms, longitudinal, exploratory
Evidential Contribution
Research question/purpose: "(1) to develop an inclusive solution business model framework that assists firms wishing to design solution business models, and (2) to identify and categorize organizational capabilities and management practices necessary for the effective management of such a business model." (p.700)
Key findings: The solution business model framework "consists of a solution process with four phases (develop solutions, create demand, sell solution, and deliver solution) and three groups of cross-functionality issues commercialization, industrialization, and solution platform). The framework identifies twelve capability categories, and sixty-four capabilities and management practices pertinent to the effective management of solution business. The research points to the importance of cross-functional alignment within firms. An effective solution business model requires the intricate coordination of resources and business processes across all functions." (p.699)
Limitations and scope for further research: "an important research avenue is to identify the reinforcing business model elements that drive configurational fit, and, thus, the effectiveness of a solution business model." (p.709). "a comparative analysis of how the solutions business models differ between firms applying different business logics." (p.709), relating the management practices and capabilities identified to business performance
Synthesis/Key contribution(s) to review question
Processes/Phases of Development & Deployment: The development, deployment and redeployment of business solutions require inter- and intra-firm cross-functional communication and activities. Commercialisation and industrialisation are parallel processes.
Redeployment: Solutions need to be replicable and scalable.
Actors: supplier network – customer network
Interaction Form(s): value co-creation
Comments/observations/notes:

Citation
Title: Customer solutions in the capital goods industry: Examining the impact of the buying centre
Author(s): Töllner, A., Blut, M., Holzmüller, H.H.
Journal: Industrial Marketing Management
Year: 2011
Key words: Customer solutions, buying centre, in-depth interviews
Study Background
Type of research (conceptual, empirical – qualitative, empirical – quantitative, practitioner): empirical – qualitative
Epistemological approach (positivist, relativist, social constructionist): relativist
Theoretical foundation: service-dominant logic, role theory
Methodology
Sample selection, size and characteristics: purposive sampling, 17 managers from nine customer firms in the capital goods industry (seven project managers who acted as deciders, five purchasing managers who fulfilled the role of buyer, one warehouse manager, two maintenance engineers, and two persons of the

factory workforce as members of the group of users)
Data collection and analysis method(s): Semi-structured in-depth interviews (17), inductive coding
Evidential Contribution
Research question/purpose: (1) to explore the conceptualisation of business solutions in the capital goods industry, (2) to examine the buying centre members' perspectives on relevant solution criteria
Key findings: "customers purchasing solutions in the capital goods industry expect the provider to be excellent in terms of six customer/supplier relational processes, namely (1) customer requirements definition, (2) customization and integration of goods and/or services, (3) their deployment, (4) post-deployment support, (5) signalling activities, and (6) inter-process management. […] the relevance of these processes differs across the most important members of the buying centre (users, buyers, and deciders) due to their specific organizational function." (p. 712)
Limitations and scope for further research: "larger quantitative study to provide further empirical evidence on the differences between the roles in the buying centre. Especially, a cross-industry study capturing a large number of (similar) B2B-industries would help to generalize findings of this research." (p.720)
Synthesis/Key contribution(s) to review question
Processes/Phases of Development & Deployment: a solution in the capital goods industry comprises requirements definition, customization & integration, deployment, post-deployment, signalling, inter-process management.
Redeployment:
Actors: supplier –customer, internal customer actors
Interaction Form(s): co-creation
Comments/observations/notes:

Citation
Title: Rethinking Customer Solutions: From Product Bundles to Relational Processes
Author(s): Tuli K. R., Kohli, A.K. &Bharadwaj, S. G.
Journal: Journal of Marketing
Year: 2007
Key words: customer solutions,
Study Background
Type of research (conceptual, empirical – qualitative, empirical – quantitative, practitioner):
Epistemological approach (positivist, relativist, social constructionist): relativist
Theoretical foundation: service-dominant logic
Methodology
Sample selection, size and characteristics: 49 managers from 25 firms involved in purchasing, deploying, and/or using solutions (customer organizations) and 55 managers from 29 firms involved in selling, developing, deploying, and/or supporting solutions (supplier organizations). focus groups with 21 managers from 19 supplier firms; industries: IT, healthcare, real estate, financial services
Data collection and analysis method(s): interviews, focus groups
Evidential Contribution
Research question/purpose:
Key findings: "Extant literature and suppliers interviewed for this study view a solution as a customized and integrated combination of goods and services for meeting a customer's business needs. In contrast, customers view a solution as a set of customer–supplier relational processes comprising (1) customer requirements definition, (2) customization and integration of goods and/or services and (3) their deployment, and (4) postdeployment customer support, all of which are aimed at meeting customers' business needs. The relational process view can help suppliers deliver more effective solutions at profitable prices. In addition, field research suggests that the effectiveness of a solution depends not only on supplier variables but also on several customer variables. Supplier variables include contingent hierarchy, documentation emphasis, incentive externality, customer interactor stability, and process articulation. Customer variables include adaptiveness to supplier offerings and political and operational counseling that a customer provides to a supplier. Several of these variables underscore the importance of suppliers developing social capital with customers." (p.1)
Limitations and scope for further research: "developing measures of solution effectiveness, defining supplier and customer variables, and empirically testing the theoretical propositions" (p.14), to examine factors that moderate the effects of supplier and customer variables on solution effectiveness, e.g. single vs.

multiple suppliers and customer expertise
Synthesis/Key contribution(s) to review question
Processes/Phases of Development & Deployment: four relational processes related to the development and deployment of business solutions as outlined in the key findings
Redeployment:
Actors: supplier – customer
Interaction Form(s): co-creation
Comments/observations/notes:

Citation
Title: Hybrid offerings: How manufacturing firms combine goods and services successfully
Author(s): Ulaga, W. &Reinartz, W.J
Journal / Source: Journal of Marketing
Year: 2011
Key words: hybrid offerings, services
Study Background
Type of research (conceptual, empirical – qualitative, empirical – quantitative, practitioner): empirical – qualitative
Epistemological approach (positivist, relativist, social constructionist): relativist
Theoretical foundation: Resource-based view
Methodology
Sample selection, size and characteristics: theoretical sampling, 22 key decision makers of industrial companies operating in various product markets, including adhesives, automotive coatings and glass, bearings, cables and cabling systems, energy generation and distribution, on board electronics for civil and military aircrafts, printing presses, and specialty chemicals.
Data collection and analysis method(s): in depth interviews, grounded theory coding
Evidential Contribution
Research question/purpose: "1. What distinctive capabilities must goods-focused manufacturers (compared with pure-service players) develop to generate successful hybrid offerings? 2. Which unique resources must manufacturers leverage to build these distinctive capabilities? 3. How can goods manufacturers translate unique resources and distinctive service capabilities into positional advantages, and how do these effects vary across different types of services?" (p.6)
Key findings: Development of a resource-capability framework: "Executives identify four critical resources: (1) product usage and process data derived from the firm's installed base of physical goods, (2) product development and manufacturing assets, (3) an experienced product sales force and distribution network, and (4) a field service organization. In leveraging these specific resources, successful firms build five critical capabilities: (1) service-related data processing and interpretation capability, (2) execution risk assessment and mitigation capability, (3) design-to-service capability, (4) hybrid offering sales capability, and (5)hybrid offering deployment capability. These capabilities influence manufacturers' positional advantage in two directions: differentiation and cost leadership. The authors propose a new typology of industrial services and discuss how resources and capabilities affect success across categories of hybrid offers." (p.6)
Limitations and scope for further research: "empirical validation to quantify the proposed effects" (p.22), triangulate the supplier with the customer perspective, investigation of how pure service firms venture into hybrid offerings
Synthesis/Key contribution(s) to review question
Processes/Phases of Development and Deployment:
Redeployment:
Actors: supplier network – customer network
Interaction Forms:
Comments/observations/notes:

Citation
Title: Evolving to a New Dominant Logic of Marketing
Author(s): Vargo, S. L. and Lusch, R. F.
Journal: Journal of Marketing
Year: 2004
Key words: marketing theory, dominant logic
Study Background
Type of research (conceptual, empirical – qualitative, empirical – quantitative, practitioner): conceptual
Epistemological approach (positivist, relativist, social constructionist): relativist
Theoretical foundation: service dominant logic
Methodology
Sample selection, size and characteristics:
Data collection and analysis method(s):
Evidential Contribution
Research question/purpose: To propose a new dominant logic for marketing
Key findings: "As more marketing scholars seem to be implying, the appropriate model for understanding marketing may not be one developed to understand the role of manufacturing in an economy, the microeconomic model, with its focus on the good that is only occasionally involved in exchange. A more appropriate unit of exchange is perhaps the application of competences, or specialized human knowledge and skills, for and to the benefit of the receiver." (p. 15)
Limitations and scope for further research: research with more focus on service-centred dominant logic conceptualization and implications
Synthesis/Key contribution(s) to review question
Processes/Phases of Development and Deployment:
Redeployment:
Actors: suppliers and customers and networks
Interaction Form(s): value co-creation
Comments/observations/notes:

Citation
Title: Service-dominant logic: continuing the evolution
Author(s): Vargo, S. L. and Lusch, R. F.
Journal: Journal of the Academy of Marketing Science
Year: 2008
Key words: service, service- dominant logic, new dominant logic
Study Background
Type of research (conceptual, empirical – qualitative, empirical – quantitative, practitioner): conceptual
Epistemological approach (positivist, relativist, social constructionist): relativist
Theoretical foundation: service dominant logic
Methodology
Sample selection, size and characteristics:
Data collection and analysis method(s):
Evidential Contribution
Research question/purpose: clarify and adjust the propositions made in relation Vargo and Lusch (2004)
Key findings: "[...] characterisation of a generalized S-D logic is that it is a mindset, a lens through which to look at social and economic exchange phenomena so they can potentially be seen more clearly. That is, S-D logic functions at the pretheoretic, paradigm level—though it is also not a paradigm because it does not have "worldview" status." (p. 9)
Limitations and scope for further research: "[...] central issues that are ripe for further elaboration are value propositions, value networks and constellations, dialogue as a dominant communication form, internal service systems, global service systems, and new conceptualization of global wealth and wellbeing based on service thinking." (p. 9)
Synthesis/Key contribution(s) to review question
Processes/Phases of Development and Deployment:

Redeployment:
Actors: supplier –customer, network
Interaction Form(s): value co-creation
Comments/observations/notes:

Citation
Title: Manufacturing firms and integrated solutions: characteristics and implication
Author(s): Windahl, C., Andersson, P., Berggren, C. &Nehler, C.
Journal: European Journal of Innovation Management
Year: 2004
Key words: innovation, services, capital, manufacturing industries
Study Background
Type of research (conceptual, empirical – qualitative, empirical – quantitative, practitioner): empirical – qualitative
Epistemological approach (positivist, relativist, social constructionist): relativist
Theoretical foundation:
Methodology
Sample selection, size and characteristics: 3 international firms in the capital goods industry
Data collection and analysis method(s): case studies (open ended interviews, 29 managers of the firms), longitudinal, exploratory, drawing on Yin (2003), Eisenhardt (1989)
Evidential Contribution
Research question/purpose: "to analyse the new challenges facing integrated solutions providers in terms of customer interaction and competence requirements" (p.219)
Key findings: solution providers need a balanced competence profile regarding i) technical & application competence, ii) systems integration competence, iii) partnering competence, and iv) market/business & consulting competence. "This implies a move form product-focus to customer-centric orientation and focus on optimisation of user processes." (p.218)
Limitations and scope for further research: Investigation "to establish to what extent and under what circumstances an integrated solution provider could build or acquire these competences, and when it will be beyond the limits of its core competencies, thus requiring the mobilisation of broader external alliances and networks." (p.227), studies into contractual arrangements, studies into "economies of scale at the component level" (p.227)
Synthesis/Key contribution(s) to review question
Processes/Phases of Development and Deployment:
Redeployment:
Actors: supplier(& possibly supplier network) and customer
Interaction Form(s): partly co-creation, application of the concept of architectural innovation to solutions. Architectural innovation is "a reconfiguration of an established system to link together existing components in a new ways, […] that creates new interactions and new linkages" (Henderson and Clark (1990, p.13), in Windahl et al. (2004, p. 221)) or recombinative innovation as suggested by Gallouj and Weinstein (1997
Comments/observations/notes:

Citation
Title: Developing integrated solutions: The importance of relationships within the network
Author(s): Windahl, C. &Lakemond, N.
Journal: Industrial Marketing Management
Year: 2006
Key words: Integrated solutions, relationships, network theory, capital goods
Study Background
Type of research (conceptual, empirical – qualitative, empirical – quantitative, practitioner): empirical – qualitative
Epistemological approach (positivist, relativist, social constructionist): social constructionist
Theoretical foundation: network theory
Methodology

Sample selection, size and characteristics: 2 international companies of capital goods industry
Data collection and analysis method(s): comparative case studies (65 semi-structured open-ended interviews, documentary evidence), systematic combining, cross-sectional, descriptive
Evidential Contribution
Research question/purpose: "how and to what extent [do] the relationships and actors within the business network facilitate or impede the development of integrated solutions?" (p.809)
Key findings: "The paper identifies the following six factors as important when developing integrated solutions: the strength of the relationships between the different actors involved, the firm's position in the network, the firm's network horizon, the solution's impact on existing internal activities, the solution's impact on customers' core processes, and external determinants. It shows that inter- and intra-firm relationships can both enable and obstruct the development of integrated solutions. For the firms involved in the development of integrated solutions, it becomes crucial to manage this duality." (p.806)
Limitations and scope for further research: research on both inter- and intra-firm relationships, research on the "necessity of a close collaboration and involvement of customers and end customers" (p.817)
Synthesis/Key contribution(s) to review question
Processes/Phases of Development & Deployment: "the ability to manage, use and exploit inter-organizational relationships is likely to increase the success of the development of integrated solutions." (p.817)
Redeployment:
Actors: supplier network – customer, internal supplier actors
Interaction Form(s): co-creation
Comments/observations/notes:

Citation
Title: Integrated solutions from a service-centred perspective: Applicability and limitations in the capital goods industry
Author(s): Windahl, C. &Lakemond, N.
Journal: Industrial Marketing Management
Year: 2010
Key words: Integrated solutions, goods, services, customer–supplier interdependency, capital goods industry
Study Background
Type of research (conceptual, empirical – qualitative, empirical – quantitative, practitioner): empirical – qualitative
Epistemological approach (positivist, relativist, social constructionist): social constructionist
Theoretical foundation: service-dominant & goods-dominant logic
Methodology
Sample selection, size and characteristics: 3 case studies, international companies in the capital goods industry
Data collection and analysis method(s): workshops, 12 in-depth interviews, longitudinal, exploratory, drawing on Yin (1994)
Evidential Contribution
Research question/purpose: "(a) how can the concept of integrated solutions be operationalized, and (b) how do integrated solutions change the interdependencies between suppliers and customers?" (p.1279)
Key findings: framework development "identifying four different categories of integrated solutions: rental, maintenance, operational and performance offerings. […] The reciprocal interdependencies increase between customers and suppliers" with integrated solution offerings. "Dependencies relate[…] to process knowledge, process optimization, and process operations. […] Moving along a linear continuum from goods to services, firms developing integrated solutions need to balance elements of both goods- and service-logics, as well as manage the increased customer–supplier interdependencies that integrated solutions entail." (p.1278)
Limitations and scope for further research: test the proposed framework and dimensions quantitatively, research the topic from a customer perspective
Synthesis/Key contribution(s) to review question
Process/Phases of Development & Deployment:

Redeployment:
Actors: customer-supplier
Interaction Form(s): “the supplier becomes part of the customers' processes […]. […] this does not necessarily imply an active or co-producing customer, which a service-centered logic emphasizes. Rather, the interaction between the supplier and the customer changes from transactions (in the goods-centered logic) to increased dependency (in the integrated solutions-centered logic). The role of the customers changes from receiving a good (in the goods-centered logic) to outsourcing parts of their operations (in the ‘integrated solutions-centered logic’).” (p.1282). In the development of integrated solutions, it is important to balance elements from goods- and service- dominant logic: “So, on the one hand, the ‘goods-dominated’ attitudes need to be overturned. If companies focus on cutting the costs and increasing the value for customers, these companies might find that products or technologies other than the established ones are more efficient and suitable to use. Integrated solutions create an opportunity for radical and ‘out of the box’ innovations. On the other hand, as we have seen in our cases, established thinking and established departments, such as service and R&D, greatly contribute to the creation of integrated solutions. Service engineers influence the design of new equipment and hence create better conditions for effective service. The R&D department provides invaluable knowledge on how to increase the efficiency of the goods, not only through improving the good itself but also through adding new technology, substantially improving the product's performance. Therefore, although the strategic perspective on integrated solutions is applicable and useful to understand the consequences of integrated solutions, it must be complemented with a focus on the need to integrate integrated solutions with the existing business which it is highly dependent upon.” (p.1288)
Comments/observations/notes: